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United Nations Decade of Sustainable Energy for All

Report of the Secretary-General

Summary

The United Nations Decade of Sustainable Energy for All (2014-2024) offers a timely and unique opportunity for all stakeholders to gather around a common platform to take further action to effectively move the world towards sustainable energy for all. Stakeholders have started to work with the United Nations towards a more coordinated global plan of action in which activities will complement each other and synergies will be realized that will help move forward the overall objectives of sustainable energy for all. Programmes relating to the Decade will also focus on those synergies which can be realized as a result of the strong nexus that exists between energy and other development factors, including water, food, health, education, gender and poverty.

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I. Introduction

1. Recognizing that access to modern affordable energy services in developing countries is essential for sustainable development, the General Assembly, in its resolution 65/151, decided to declare 2012 the International Year of Sustainable Energy for All. During that year, many initiatives were undertaken by Member States and international organizations to create, at all levels, an enabling environment for the promotion of access to energy and energy services and the use of new and renewable energy technologies.

2. Stressing the need for a coherent, integrated approach to energy issues and the promotion of synergies across the global energy agenda for sustainable development, the General Assembly, in its resolution 67/215, decided to declare 2014-2024 the United Nations Decade of Sustainable Energy for All, to be promoted through all sources of energy, mindful of the provisions of the annex to Economic and Social Council resolution 1980/67 of 25 July 1980. In the same resolution, the Assembly invited the Secretary-General to report to it, at its sixty-eighth session, on the Decade.

II. Energy and sustainable development

3. Energy is inextricably linked to most global challenges. Access to energy sources has been a major driver of development in industrialized countries and emerging economies. Energy facilitates eradicating poverty, increasing food production, providing clean water, improving public health, enhancing education, addressing climate change, creating economic opportunity and empowering youth and women. Although there was no specific Millennium Development Goal relating to energy, energy is widely recognized as a prerequisite to the achievement of the Goals and sustainable development, as emphasized by numerous international debates, including the World Summit on Sustainable Development, the High-level Plenary Meeting of the General Assembly on the Millennium Development Goals and the United Nations Conference on Sustainable Development.

4. Nevertheless, 1.3 billion people, or nearly one in five globally, continue to lack electricity. Forty-five per cent of the world's population — 3.2 billion people — still rely on wood, charcoal, animal or crop waste or other solid fuels to cook their food and heat their homes. The "energy-poor" suffer the health consequences of inefficient combustion of solid fuels in inadequately ventilated buildings, which kills nearly four million people a year, most of them women and children,[1] as well as the economic consequences of insufficient power for productive income-generating activities and for other basic services, such as health and education. In particular, women and girls in the developing world are disproportionately affected in that regard.

5. Where modern energy services are plentiful, there are different challenges. Emissions of carbon dioxide and other greenhouse gases from fossil fuels are

[1] Stephen S. Lim and others, "A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010", *The Lancet*, vol. 380, issue 9859 (15 December 2012).

contributing to changes in the Earth's climate, to the detriment of those who depend on the planet's natural systems for survival. Climate change threatens food and water security for hundreds of millions of people, undermining the most essential foundations of local, national and global stability. Competition for scarce resources is increasing, exacerbating old conflicts and creating new ones. As lands degrade, forests are felled and sea levels rise, the movement of people who have been driven from their homes by environmental change may reshape the human geography of the planet.

6. The transition to sustainable energy systems provides perhaps one of the largest global economic opportunities of the twenty-first century, which is particularly important at a time when countries are looking to improve economic performance and create sustainable jobs and employment opportunities. Despite tremendous progress, barriers still exist to promoting sustainable energy solutions, especially given the need for a dramatic change in the pace and scale of how this issue is addressed on the ground. Action is needed in areas ranging from finance, to technology development, to policy and regulatory innovation, to improved business models and governance structures.

The need for a global transformation of energy systems

7. A global transformation of the way energy is produced and consumed is needed to provide sustainable energy for all, to satisfy rapid growth in energy demand, particularly in many developing countries and emerging economies, and to diminish the negative impacts of climate change. Modern energy services stand at the centre of global efforts to induce a paradigm shift towards green economies, poverty eradication and, ultimately, sustainable development.

8. The goals that need to be achieved to promote human well-being depend on progress in the global transformation of energy systems. Societies all over the world will not be able to advance their sustainable development goals unless extraordinary changes are implemented in the way energy is produced and used, and measures implemented to secure access to affordable sustainable modern and clean energy systems.

9. Record investment is needed to propel innovation, development and commercialization of environmentally sound technologies. Ample cooperation and actions are needed to substantially increase the contribution of those technologies to the world's energy systems and to guarantee modern energy services to everyone.

III. Inducing change

10. The global conversation about energy and sustainable development is already fully under way. In many forums, including the General Assembly and the United Nations Conference on Sustainable Development, the past several years have seen an increasing recognition and reaffirmation that energy is central to virtually everything we do.

11. Momentum is growing. In regions, such as Africa, and in many countries, including the States members of the European Union, small island developing States and, most recently, States members of the Asia and the Pacific Energy Ministers'

Forum, sustainable energy for all has been endorsed as a political priority through explicit declarations and commitments to action. Hundreds of leaders in other countries, from business entities, civil society organizations and international organizations, have also come forward with concrete commitments.

12. Representatives of Member States interested in energy formed Friends of Sustainable Energy for All, an informal group of approximately 30 Permanent Representatives to the United Nations in New York, to promote effective dialogue on energy issues.

13. Responding to the heightened call for action with regard to energy, the Secretary-General has taken a number of steps, including establishing the Advisory Group on Energy and Climate Change in 2009 and the Sustainable Energy for All initiative in 2011.

14. More broadly, the Secretary-General convened the High-level Panel on the Post-2015 Development Agenda, which recognized the importance of energy in the post-2015 agenda. The United Nations system also took the lead in organizing multi-stakeholder thematic consultations globally in support of the discussions on the post-2015 agenda. The consultation on energy called for sustainable energy for all as a potential global goal, as well as the creation of a global network on sustainable energy for all to help continue dialogue with an array of stakeholders on energy issues.

International Year of Sustainable Energy for All

15. In 2010, the General Assembly, recognizing the importance of access to modern affordable energy services in developing countries for the achievement of the internationally agreed development goals, including the Millennium Development Goals, declared 2012 the International Year of Sustainable Energy for All. In its resolution 65/151, the Assembly, inter alia, requested the Secretary-General, in consultation with relevant agencies within the United Nations system and UN-Energy, to organize and coordinate activities to be undertaken during the Year, and encouraged all Member States, the United Nations system and all other actors to take advantage of the Year to increase awareness of the importance of addressing energy issues, including modern energy services for all, access to affordable energy, energy efficiency and the sustainability of energy sources and use, and to promote action at the local, national, regional and international levels.

16. Consequently, a number of global and regional events and initiatives were launched in order to further raise awareness of those issues.[2] The observance of the Year was very successful. It has created global awareness of the importance of energy for sustainable development and has brought the issue to the top of the agenda of decision makers at the national and international levels. Furthermore, it has sparked unprecedented commitments for action that promise to advance long-term solutions to critical problems relating to energy. The Year also served as a platform for building partnerships among Governments, organizations of the United Nations system, the private sector, civil society and other actors. It has provided an effective forum for the sharing of experiences and good practices to build more inclusive national energy sectors that will improve access to sustainable energy.

[2] For additional information on activities undertaken during the Year, see A/67/314.

Sustainable Energy for All initiative of the Secretary-General

17. In 2011, the Secretary-General launched the Sustainable Energy for All initiative, which seeks to identify and mobilize action by all stakeholders in support of a major global transformation of energy systems. The initiative has the goal of achieving sustainable energy for all by the year 2030 through the achievement of three major objectives: (a) ensuring universal access to modern energy services; (b) doubling the rate of improvement in energy efficiency; and (c) doubling the share of renewable energy in the global energy mix.[3]

18. To guide the work of the Sustainable Energy for All initiative, the Secretary-General appointed a high-level group of distinguished leaders from around the world. The High-level Group on Sustainable Energy for All produced a Global Action Agenda (A/67/175) during 2012, which provides a concrete strategy for engagement by all actors across different sectors of society. It also aims to help countries and stakeholders create their own pathways toward sustainable energy for all, based on technology choices that are appropriate to their unique national and local circumstances.

19. In September 2012, the Group published a report summarizing its work (see A/67/551) and the Secretary-General appointed a Special Representative for Sustainable Energy for All and Chief Executive of the Sustainable Energy for All initiative. Furthermore, an advisory board for the initiative was formed and is being co-chaired by the Secretary-General and the President of the World Bank. A three-tiered structure is now guiding, overseeing and supporting the implementation of the initiative. It includes the advisory board, an executive committee and a global facilitation team. Regional and thematic hubs are also being created to further support the necessary work. In addition, a global tracking framework, a joint initiative of the World Bank, the International Energy Agency and 15 other international organizations, was launched to establish baseline energy data to ensure accountability and transparency.

20. The initiative is succeeding in catalysing significant commitments to sustainable energy by Governments, the United Nations system, multilateral development banks, the private sector and civil society. More than 70 developing States have partnered with the initiative, while developed countries, civil society and businesses have announced commitments in the tens of billions of dollars.

21. The Clean Energy Ministerial has also endorsed the Sustainable Energy for All initiative. Participating Governments account for more than 75 per cent of global energy consumption, 80 per cent of global greenhouse gas emissions and 90 per cent of global clean energy investment.

United Nations Conference on Sustainable Development

22. In the outcome document of the United Nations Conference on Sustainable Development, "The future we want", endorsed by the General Assembly in resolution 66/288, Heads of State and Government and high-level representatives recognized "the critical role that energy plays in the development process, as access

[3] United Nations, *Sustainable Energy for All: A Vision Statement by Ban Ki-moon, Secretary-General of the United Nations* (New York, November 2011).

to sustainable modern energy services contributes to poverty eradication, saves lives, improves health and helps provide for basic human needs".

23. Heads of State and Government and high-level representatives also emphasized the need to address the challenge of access to sustainable modern energy services for all, in particular for the poor, who are unable to afford such services even when they are available. They emphasized the need to take further action to improve that situation, including by mobilizing adequate financial resources, so as to provide those services in developing countries in a reliable, affordable, economically viable and socially and environmentally acceptable manner.

24. They further recognized that improving energy efficiency, increasing the share of renewable energy and cleaner and energy-efficient technologies were important for sustainable development, including in addressing climate change. Commitments announced at the Conference (see A/67/551) include the following:

(a) More than 70 developing countries are now working with the initiative, with more coming on board;

(b) More than $50 billion has been pledged in support of the objectives of the initiative from the private sector and investors;

(c) Tens of billions of dollars have been committed by multilateral development banks in Asia, Europe and Latin America;

(d) Hundreds of actions have been catalysed and commitments made in support of the three core objectives;

(e) Commitments to support energy access will provide more than one billion people with access to modern energy during the lifespan of the initiative;

(f) New public-private partnerships are being formed with regard to transport, energy efficiency, solar cooking, finance and energy access for the poor.

Energy and the post-2015 development framework

25. The initial input of the Secretary-General to the Open Working Group on Sustainable Development Goals (A/67/634), in December 2012, presented a summary of the responses from 63 Member States to a questionnaire asking them to identify priority areas for the definition a set of sustainable development goals. Energy was ranked among the three main priorities. The results of that exercise reflect the high level of importance that Member States place on the issue of energy.

26. The United Nations Development Group, through the end of 2012 and the beginning of 2013, led efforts to catalyse a "global conversation" on a new post-2015 development framework through a series of more than 80 national consultations and 11 global thematic consultations. The efforts were meant to stimulate discussions with all stakeholders and to foster the sharing of experiences from current initiatives, as well as a shared vision of necessary actions. One of the 11 major thematic consultations was on energy.

27. The consultation on energy was aimed at facilitating an open worldwide dialogue with all stakeholders on how energy should be integrated into the post-2015 global development framework. The consultations considered a broad range of

priority issues under the following four critical areas: universal access to modern energy services, increased use of renewable energy, increased energy efficiency and the energy-development nexus. Discussions on the energy-development nexus focused on how to promote integrated energy solutions that can produce multiple development dividends, especially in the areas of poverty, water, food security, gender, health, education and environmental sustainability.

28. In addition, the High-level Panel on the Post-2015 Development Agenda convened by the Secretary-General strongly recommended the integration of energy in the post-2015 agenda. The final report from the Panel included an illustrative, dedicated, global sustainable development goal relating to energy.

IV. Towards a framework for action

29. In the outcome document of the United Nations Conference on Development, Member States pledged their determination "to act to make sustainable energy for all a reality and, through this, help to eradicate poverty and lead to sustainable development and global prosperity". The declaration by the General Assembly of the 2014-2024 United Nations Decade of Sustainable Energy for All offers a both timely and unique opportunity for all stakeholders to gather around a common platform to take further action to effectively move the world towards sustainable energy for all.

30. Although the present, first report on the Decade focuses on existing activities and plans for the near future by Member States and international organizations, an integrated programme is being developed for the long term. Stakeholders have started to work with the United Nations towards a more coordinated global plan of action in which activities will complement each other and synergies will be realized that will help move forward the overall objectives of the goal of sustainable energy for all.

31. To assist stakeholders in this pursuit, the Secretary-General's Special Representative for Sustainable Energy for All will be responsible for the overall coordination and organization of the activities for the Decade, supported by UN-Energy and partners of the Sustainable Energy for All initiative, and in collaboration with the United Nations system and other relevant stakeholders.

32. The Global Action Agenda of the Sustainable Energy for All initiative will chart a way forward by providing tangible entry points for all stakeholders to take action, linking individual, national, regional and global efforts towards pursuing specific energy objectives. The United Nations will serve as a convening platform where key stakeholders from both developing and developed countries can mobilize bold commitments, foster new public-private partnerships and leverage the significant investments needed to make the transformative changes necessary in the world's energy systems.[4]

33. The 11 Action Areas and the High Impact Opportunities already identified by the Global Action Agenda of the SE4All initiative will provide a framework for organizing collaborative efforts across all relevant sectors and for driving progress, and catalyse change.

[4] United Nations, *Sustainable Energy for All: A Global Action Agenda* (New York, April 2012).

34. The Decade programme will focus on synergies that can be realized as a result of the strong nexus that exists between energy and other development factors, including water, food, health, education, gender and poverty. The Decade will also promote more sustainable energy options in industrialized countries, in line with the global nature of the energy challenge.

35. Global support will be necessary to enhance communication and dissemination of best practices and lessons learned from experiences all over the world. In line with General Assembly requests for enhanced accountability and in order to document progress, a global tracking framework has been developed to establish the baseline and means to record progress on access to energy, energy efficiency and renewables. Also, activities should be planned to enable tracking of the changes, the progress made and the rate of implementation of programmes supporting the Decade. The global tracking framework initiative can play an important role in facilitating the monitoring of progress.

36. Building on the submitted contributions to the present report, activities in support of the Decade involving a variety of stakeholders, including nongovernmental organizations, civil society, the private sector and other relevant stakeholders, will also be essential to securing effective progress towards defined goals.

37. In its resolution 67/215, the General Assembly invited the Secretary-General to prepare a report on the Decade for submission to the Assembly at its the sixty-eighth session. Under the leadership of the newly appointed Special Representative of the Secretary-General, such a report will be prepared on a biennial basis, in consultation with Member States and relevant stakeholders and drawing, among other things, on inputs of the global tracking framework being prepared in consultation with several institutions under the leadership of the World Bank and the International Energy Agency. Annual meetings will be undertaken by UN-Energy and will build on regional consultations involving stakeholders, carried out in cooperation with the United Nations regional commissions. These consultations will contribute to the exchange of knowledge and lessons learned, as well as to progress in implementation.

38. The national, regional and global efforts of the Decade should facilitate the following positive outcomes:

(a) Catalyse actions at all levels to transform the world's energy systems towards an equitable and sustainable future: all stakeholders should lead the way by example, setting their own goals and targets on energy and the nexus with other development factors; establishing proactive policies, regulatory frameworks and incentives to spur innovation and investment; facilitating the building of market structures to deliver sustainable energy solutions and services over time; dramatically increasing bottom-up solutions; expanding capacity-building; promoting partnerships; enhancing research and development; and disseminating information on experiences and lessons learned;

(b) Create an enabling environment for a significant increase in investment in the world's energy systems: the International Energy Agency estimates that nearly $1 trillion in cumulative investment is needed to achieve universal energy access by

2030.[5] In addition, massive investments in renewable energy and energy efficiency are necessary in order to reach the global energy goals of the Sustainable Energy for All initiative;

(c) Catalyse overall investment in the world's energy systems: Public-private partnerships will be key to mobilizing the massive investment needed for the global transformation of energy systems. It will be essential to use public investment in order to leverage the private investment that is required to achieve this transformation. Consequently, there is a need for megapartnerships such as the Sustainable Energy for All initiative;

(d) Increase support for research and development: Governments and the private sector will need to support such efforts to drive technological innovation and reduce the cost of clean energy technologies, steadily allowing the reduction of costs for clean energy technologies and making these alternatives increasingly attractive economically all over the world;

(e) Continue to expand global consultations with all stakeholders in both developing and developed countries: civil society, businesses, youth and Governments should continue a dialogue in order to ensure that the perspectives of all stakeholders are appropriately captured and fed into the Decade programme, the post-2015 development framework and other relevant processes;

(f) Create more incentives for a change in behaviour to manage and allocate resources in a more sustainable manner: activities relating to the Decade should promote sustainable energy production and consumption so that energy resources are used in a more equitable manner;

(g) Expand data and statistical programmes in developing countries: more work is needed on energy-integrated targets, indicators and definitions, and on identifying data needs to capture the many dimensions and interlinkages and to ensure national relevance and measurability. The global tracking framework can provide support in that respect;

(h) Expand and increase partnerships and commitments: actions and programmes relating to the Decade should seek to expand current partnerships and secure new partnerships and commitments for interim goals by 2024 and beyond;

(i) Enhance dissemination of knowledge, commitments and solutions: the Decade should provide a platform for Governments and non-governmental actors to disseminate knowledge and to showcase and announce contributions and solutions that accelerate the ultimate goal of sustainable energy for all.

V. Contributions from Member States and other stakeholders

39. Ambitious goals and challenging programmes and projects are already taking place, or are being planned or considered, in support of the Decade programme, the SE4All initiative, and the post-215 development agenda. Nevertheless, it is clear that many Member States and national and international organizations are still in the process of developing specific plans for the long term, including the period ending

[5] International Energy Agency, *World Energy Outlook 2012: Executive Summary* (Paris, 2012).

in 2024. It is expected that those plans and programmes will be further defined during 2014, the first year of the Decade.

Member States

40. Many Member States have already expressed their support for a strong implementation programme during the United Nations Decade of Sustainable Energy for All. Member Sates consider the Decade as a major platform that will help to accelerate the necessary transformation of global energy systems.

41. Several partners have supported the immediate start-up of the global facilitation team that will manage the Sustainable Energy for All initiative. They include Austria, Denmark, Germany, Norway, Sweden, the European Commission, the Executive Office of the Secretary-General, the United Nations Industrial Development Organization (UNIDO), the United Nations Development Programme (UNDP), the United Nations Office for Project Services (UNOPS), the Multi-Partner Trust Fund Office, the World Bank, the United Nations Foundation and members of UN-Energy.

42. Austria provides the office facilities for the Sustainable Energy for All initiative global facilitation team in Vienna and has contributed staff to the team. The Government hosts the biennial Vienna Energy Forum, bringing together Heads of State, ministers, energy experts and representatives of international and non-governmental organizations, academia, civil society and the private sector in order to discuss energy for sustainable development, and has supported the objectives of the initiative.

43. Belarus has planned the commissioning in the coming years of 160 additional sites generating power from renewable energy and 38 biogas facilities, as well as construction and restoration of 33 hydropower stations. The national programme for development of local and renewable sources of energy for 2011-2015 includes the construction of wind installations (440-460 MW), 126 heat pumps and geothermal energy installations with a total capacity of 8.9 MW, and 172 solar water heaters and solar plants. Under the existing assessments, the implementation of the above programmes will result by 2015 in a twofold increase in the use of renewable sources of energy.

44. Brazil aims to accomplish universal energy access by 2014, using not only conventional electrical grids but also hybrid systems, to ensure energy access to 1.7 million people as part of the national Energy for All programme to reduce social inequity and stimulate development opportunities. Moreover, Brazil's total investment in renewable energy for the next 10 years will reach $235 billion.

45. China has made major national investments in energy supply to support the sustainable economic growth of recent years. China is the fourth-largest producer of wind energy, with 24 GW installed capacity, and aims to have 100 GW of wind power capacity by 2020. China has committed over $67 billion in investments in renewable energy. To promote national development, China has also prioritized access to energy for remote areas in western China.

46. Denmark has contributed to the initiative through, among other things, financial contributions to the technical capacity of the Energy Sector Management Assistance Programme and through a strong focus on energy efficiency linked to the

Risø Centre of the United Nations Environment Programme (UNEP), which will focus on tracking, knowledge management and implementation support related to energy efficiency.

47. France supports the objectives of the initiative, in particular, through the French Agency for Development. Its strategy includes the use of €2 billion for developing countries for renewable energy and energy efficiency for the next three years. The Agency intervenes through co-finance and project identification as part of European contributions for the initiative. In parallel, France is working to put in place a fund for study and technical assistance to raise levels of research and expertise to institute plans of actions relating to the initiative in African countries and to support development of sustainable energy projects. Public institutions and sector operators will receive capacity-building and training through that facility. Further, the French Global Environment Facility created a €5 million window of support for the development of innovative sustainable energy projects in Africa. For the future and in relation to the Decade, France recognizes that the problem of energy access is one of the most difficult ones for developing countries.

48. To improve diversification of the energy mix, Lithuania introduced biofuel exchange markets, is planning a liquefied natural gas terminal that will begin operations in 2014, increased imports of internationally generated electricity and is implementing the European Union legislative package for the gas sector. Lithuania shares the importance of reaching the three objectives of the Sustainable Energy for All initiative globally and therefore contributes to international funds that finance energy efficiency and renewable installation projects in developing countries. Lithuania strongly supports the actions taken by the International Atomic Energy Agency to improve the existing system of international nuclear safety regulations.

49. Mexico hosted the regional dialogue on the Sustainable Energy for All initiative in March 2013 in Merida. Involving Government, business and civil society, this consultation called for energy to be fully integrated into the post-Millennium Development Goal framework and emphasized the importance of energy access as a means of promoting development. Mexico has launched an ambitious rural electrification programme and is expanding the use of solar energy and other forms of renewable energy in off-grid locations while increasing on-grid electricity from renewable energy sources.

50. The energy strategy of Morocco includes creating a diverse mix of reliable and competitive technologies, mobilizing renewable energy and other natural resources and promoting energy efficiency and effective integration into the regional energy system. The target share of renewable energy in the electric supply is 42 per cent by 2020. An institute of solar energy has been established, as well as renewable energy and energy efficiency networks, within institutes of higher education.

51. Norway believes that the Decade should support the post-2015 development agenda and, in particular, the effort regarding sustainable development goals and targets. The Decade provides an opportunity to set up a number of interim goals and milestones to be reached by 2024, supporting the final goals of the Sustainable Energy for All initiative by 2030. These goals can be pursued by securing additional commitments, greater involvement by the private sector and by new public-private partnerships specifically arranged for that purpose. Member States should use the Decade as a platform to highlight and disseminate success stories, lessons learned, best practices and solutions.

52. The Philippines has regulations that promote the exploration, development and utilization of renewable energy sources. These regulations provide the private sector various fiscal and non-fiscal incentives. The Philippines is currently implementing projects using feed-in tariffs and is supporting the acceleration of energy efficiency and conservation programmes.

53. The Russian Federation intends to contribute to the development of international cooperation in the energy sector. It considers the formation of a multilateral legal framework for international cooperation under the auspices of the United Nations to be a priority for the Decade. The Russian Federation has introduced several important initiatives of a regional and global dimension, including the Saint Petersburg Declaration and Plan of Action on Global Energy Security of 2006, and co-founded the International Partnership for Energy Efficiency Cooperation. The country provided $30 million in financial assistance to energy-poor countries in 2007, launched and funded the Energy Efficiency 21 Project for 2009-2012, and developed and submitted to the Committee on Sustainable Energy at the Economic Commission for Europe the concept of the project on rendering assistance to Member Countries of the Commonwealth of Independent States in the successful implementation of the global action plan. The country will also promote the development of a convention on international energy security. At the national level, it has created the necessary legal and institutional framework for the successful solution of problems in energy efficiency. The programme on "Energy saving and energy efficiency for the period up to 2020" has been approved, with federal expenditures expected to reach 7 billion roubles for the period 2011-2013.

54. Saudi Arabia will install at least 70 stations nationwide to measure the ability to produce electricity from the sun, wind and geothermal and waste sources, and plans to attract about $109 billion to create a solar industry that will generate one third of its electricity by 2032, or about 41,000 megawatts.

55. South Africa, working through the national utility Eskom, has increased its focus on providing electricity to rural people and those living in poor communities. Eskom has been very successful in electrification, connecting 4.07 million households to the grid and providing non-grid access (photovoltaic solar energy) to a further 6,000 households through the Eskom/Shell Joint Venture.

56. Initiatives and activities undertaken by the United Arab Emirates at the international level include: establishment by the Abu Dhabi Fund for Development of a concessional loan programme of $350 million for renewable energy in developing countries, in partnership with the International Renewable Energy Agency (IRENA); establishment by the Abu Dhabi Fund for Development of the United Arab Emirates-Pacific Partnership Fund, which is allocating $50 million in grant funding for renewable energy projects in developing Pacific island countries between 2013 and 2018; completion of a grant-funded 15 MW solar PV plant in Mauritania, which is the largest solar PV plant in Africa, and execution of a grant-funded 6 MW wind project in Seychelles by Masdar in 2013; installation of 600 small-scale solar energy systems in remote communities in Afghanistan and establishment of the Zayed Future Energy Prize for clean energy innovation and deployment by Masdar; provision by the Abu Dhabi Fund for Development of over $135 million in concessional finance for energy access, renewable energy and energy efficiency projects in developing countries between 2000 and 2011;

investment by Masdar of $540 million of venture capital in next-generation clean energy technologies; and provision of significant voluntary financial support to IRENA. The United Arab Emirates is also a founding member and key technical and financial contributor to the Global Renewable Energy Atlas. Initiatives and activities undertaken at the national level include the launch of Masdar City, a clean technology centre and model for urban sustainability; establishment of the first renewable energy targets in the Middle East; the opening of the world's largest concentrated solar power plant, the 100 MW Shams 1, by Masdar in 2013; and establishment of a 30 per cent demand reduction target by 2030 for the emirate of Dubai.

57. The United States of America supports the principles and aspirational goals of the Global Action Agenda of the Sustainable Energy for All initiative presented at the United Nations Conference on Sustainable Development through existing and planned activities across a broad range of Government agencies. It is providing substantial grant, loan and loan guarantee resources, both from funds appropriated by Congress and under loan and loan guarantee authorities, of about $2 billion for clean energy to help advance the initiative. Major activities since the Conference include: (a) technical assistance for improving enabling environments, such as leading two partner missions to help develop country action plans, the low emissions planning capacity-building initiative to support low emissions planning and clean energy implementation in 20 countries and the Global Bioenergy Partnership to promote the sustainable development of bioenergy in West Africa; (b) participation in clean energy technology partnerships such as the Clean Energy Ministerial and the Powering Agriculture: An Energy Grand Challenge for Development and the Global Alliance for Clean Cookstoves initiative of the United States Agency for International Development (USAID); and (c) Financing and mobilization of private capital through the Overseas Private Investment Corporation, the Export-Import Bank, the Millennium Challenge Corporation, the United States Trade and Development Agency, the Development Credit Authority of USAID and the Department of the Treasury. In its recently unveiled Power Africa initiative, the United States committed $7 billion over five years in order to increase access to electricity. This commitment is flanked by an additional $9 billion pledged by the private sector.

Multilateral organizations

58. The European Union and its Member States have been fully supportive of the Decade. Domestically, European Union leaders have committed to transforming Europe into a highly energy-efficient, low-carbon economy by 2050. The targets of the Europe 2020 growth strategy are to cut greenhouse gas emissions by 20 per cent below 1990 levels, produce 20 per cent of energy from renewables and increase energy efficiency by 20 per cent. The Agenda for Change highlights access to secure, affordable, clean and sustainable energy services as a key priority. The European Commission made a strong commitment to sustainable energy by 2030 at the European Union Sustainable Energy for All Summit in 2012. The European Union notes that increasing energy sustainability through diversification, affordable prices and energy dialogue with third countries are priority areas for future consideration. The European Union has already mobilized more than €500 million for rural and off-grid energy solutions and technical assistance. Ensuring strong

engagement with the private sector, local authorities and civil society in its activities and governance will also be crucial, as they have a key role to play in the setting up of national policy frameworks that incentivize investment in sustainable energy.

59. The World Bank Group has committed to doubling the leverage of its energy financing and to providing technical assistance to several Sustainable Energy for All initiative opt-in countries. It is also supporting initiatives in partnership with the Energy Sector Management Assistance Program (ESMAP). For example, the World Bank Group has launched a global technical assistance programme in connection with the initiative, with $15 million from ESMAP. Another new initiative is the Renewable Energy Mapping programme, which will produce the maps needed by Governments and project developers to identify renewable resource "hot spots" on a national scale. It has also launched a global geothermal development plan to better manage and reduce the risks of exploratory drilling and deliver power to millions. The initial target of the plan is to mobilize $500 million. This complements the Group's financing for geothermal development, which increased from $73 million in 2007 to $336 million in 2012. Members of the World Bank-led Global Gas Flaring Reduction partnership agreed to a fourth phase of its work, which has already helped reduce gas flaring by 20 per cent worldwide since 2005. On the analytical side, the Group led a team of experts from 15 agencies to produce the Global Tracking Framework report of the Sustainable Energy for All initiative.

60. Stakeholders of the Sustainable Energy for All initiative and the members of International Renewable Energy Agency have designated the latter as the hub for renewable energy of the initiative. To date, the Agency has directly supported activities of the initiative, such as the Global Tracking Framework report, has established seven high-impact initiatives and has contributed to discussions defining the modalities for the initiative. One of the Agency's contributions is REMAP2030, a road map designed to demonstrate possible pathways and priority actions for meeting the target of doubling the share of renewables in the global energy mix. To complement the work undertaken by the initiative, the Agency is making available its resources and tools to advance the deployment of renewable energy. While the Agency is specifically tasked with focusing on the initiative's renewable energy goal, the Agency's work also spans a wide range of activities relevant to the regional hubs for access and the thematic hub on energy efficiency. Therefore, the Agency is establishing institutional relationships with each of the initiative hubs to contribute to the overall effort of the initiative, enhance the flow of information and foster mutually beneficial relationships.

61. The African Development Bank has made an institutional commitment to the initiative and has been active in national dialogue processes in opt-in countries. Activities have included the preparation of strategic documents related to the initiative, the facilitation of opt-ins of African countries and country action, the mobilization of financing, and participation in initiative events.

62. The main activities of the Asian Development Bank regarding the initiative include the preparation of strategic documents, the facilitation of opt-ins of Asian countries and country action, participation in country missions and the mobilization of financing through energy sector lending and technical assistance.

63. The main activities of the Inter-American Development Bank regarding the initiative include working together with UNDP, the preparation of 19 national reports on energy and development (gap analysis) to identify opportunities for

country-level actions. The Bank, through its sustainable energy programme, has committed to the mobilization of financing and has prioritized energy in its regional strategy.

United Nations system

64. Many United Nations organizations that are member organizations of UN-Energy are already involved in efforts that support the Decade, and have announced additional commitments.

65. The United Nations Development Programme will ensure that the Decade's activities are linked to the national development priorities of developing countries in the context of the post-2015 sustainable development agenda, future sustainable development goals, the follow-up actions of the United Nations Conference on Sustainable Development and the ongoing climate change discussions under the United Nations Framework Convention on Climate Change. The Programme will, in collaboration with key partners, provide technical advice to develop specific sustainable energy solutions, in particular ones related to bottom-up/decentralized energy options. It will continue with ongoing work to provide technical assistance targeted to expanding "bottom-up" approaches to specific demand sectors such as education, health, agriculture, youth employment, small enterprises and rural and urban housing.

66. The World Health Organization considers the initiative as a landmark opportunity to reduce the enormous disease and death burden associated with the lack of access to clean, modern energy solutions, and inefficient energy use. Significant health benefits can be derived from transitions to clean renewable energy sources in the workplace, the community and the home, making health an indicator of progress towards all initiative goals. Tracking improved access to clean and sustainable energy by households and health-care facilities, reduced exposure to outdoor and indoor air pollution and its related disease burdens, and occupational risks in the energy sector can serve as valuable health indicators of progress on the initiative.

67. The United Nations Environment Programme will support the Decade by engaging in multi-stakeholder partnerships and promoting the global tracking framework. The energy efficiency hub initiated by the Government of Denmark as a satellite to the UNEP Risø Centre will focus on tracking, knowledge management and implementation support related to energy efficiency. In addition, UNEP will strengthen regional efforts and capitalize on its energy-related Global Environment Facility (GEF) portfolio. The Programme will initiate the development of renewable energy sustainability criteria, building on work by the International Resource Panel, and promote an integrated approach to the objectives of the initiative, which will allow the harnessing of mutual benefits and synergistic effects between access, efficiency and renewables. The Programme will contribute to knowledge-sharing and awareness-raising through UNEP flagship publications (e.g. the *Global Environment Outlook*); communication and outreach activities, including multimedia campaigns; networks, including regional networks of climate change officers and the Climate Technology Centers and Network, along with support to the Clean Energy Solutions network); and the biennial International Renewable Energy

Conference, facilitated by the Renewable Energy Policy Network for the 21st Century (REN21).

68. The multi-partner programme of the Food and Agriculture Organization of the United Nations (FAO) on Energy-Smart Food for People and Climate represents the commitment of FAO to the implementation of the initiative. The Organization has prominent roles in two high-impact opportunities of the Global Action Agenda: chairing the steering committee on sustainable bioenergy; and co-chairing the high-impact opportunity effort on the "water-energy-food nexus". The food-energy-water nexus and the climate-land-energy-water-development nexus are important elements to consider in achieving food security and sustainable development. The Energy-Smart Food for People and Climate programme seeks to address those challenges by working towards the goals of the Sustainable Energy for All initiative at all stages of the agrifood chain. Examples of activities include developing a robust and cost effective water-energy-food nexus assessment package, improving energy efficiency at different stages of the agrifood chain and improving access to affordable modern energy services to reduce food losses.

69. The strategy of the United Nations Educational, Scientific and Cultural Organization (UNESCO) will build on its achievements, with an emphasis on renewable energy and priority objectives focusing on: (a) education and capacity-building; (b) the sharing of best practices and scientific and technological knowledge; and (c) promoting related energy policies and the setting of standards. The objectives of UNESCO activities are implemented under the Global Renewable Energy Education and Training Programme. The strategy of UNESCO includes assistance to Member States to take concrete actions through effective policies and institutional frameworks towards enhancing the use of renewable energy technologies. The contribution of UNESCO serves as a catalyst to projects with a multiplier effect and can leverage additional funding. As an example, the Renewable Energy Futures for UNESCO Sites initiative was launched to promote the use of UNESCO biosphere reserves and World Heritage sites as field observatories on the sustainable use of renewable energy sources.

70. Potential contributions of the World Meteorological Organization (WMO) and its partners to the energy issue will be to implement and sustain the land-based, marine-based and space-based observing programmes that will provide information to decision makers on energy potential at various sites. The programmes of WMO, such as the World Climate Programme, including the World Climate Research Programme and co-sponsored bodies like the Intergovernmental Panel on Climate Change, mobilize the scientific community, which contributes to climate-change studies and assessments and improves the understanding of long-term trends relating to climate-dependent energy demands at the global level. Furthermore, the Commission for Climatology of WMO provides global leadership in promoting expertise and international cooperation in climatology. The Global Framework for Climate Services will provide an opportunity for WMO and partnering agencies to address issues related to user requirements for climate information related to the energy sector, and will identify and, with support from donors and sponsoring agencies, address the observational, research and information and forecast production needs that will serve to improve climate services to the energy sectors.

71. CleanStart is the innovative approach of the United Nations Capital Development Fund to access by poor households to sustainable, low-cost clean

energy. The programme is aimed at supporting access for low-income households and micro-entrepreneurs to modern energy through microfinance. It is designed to support at least 2.5 million people benefiting from cleaner and more efficient energy by 2017. CleanStart will support up to 18 financial service providers in six countries in Asia and Africa to provide microfinance for clean energy solutions. It will also work towards building a sustainable supply chain for energy technologies or services chosen for lending. CleanStart is implemented by the United Nations Capital Development Fund in close cooperation with GEF. A total of $60 million will be lent over the life of the programme, with the potential to reduce over 300,000 tonnes of CO2. Based on an initial investment of $26 million, CleanStart could leverage an additional $49.5 million by collaborating with other actors or programmes in refinancing ($30 million), energy value chain development ($18 million) and carbon financing ($1.5 million).

72. The International Fund for Agricultural Development can enhance its participation in the rural energy sector, given its strong link with microfinance institutions. The Fund needs to place additional value on "strengthening entrepreneurial and business skills and the promotion of private investment" by providing better access to finance for rural people. One example (a $500,000 grant in the pipeline) concerns solar-powered drip irrigation systems in Benin.

73. The Economic Commission for Europe (ECE) subprogramme on sustainable energy, through its Committee on Sustainable Energy and subsidiary bodies, will continue to provide member States with a platform for international dialogue and cooperation. Action by ECE will focus on issues related to energy efficiency, cleaner electricity production from fossil fuels, renewable energy, coal mine methane and the United Nations framework classification. The Committee will continue its energy security dialogue. The contribution of ECE to the Decade will be developed along the objectives and areas of work indicated by the agreement among member States of April 2013.

74. Programmes and activities of the United Nations Conference on Trade and Development (UNCTAD) that are relevant to the initiative have been summarized as relating to energy commodity development and greening international trade. The energy commodity development programme includes reducing information asymmetry for increased energy access and efficiency, promoting natural gas in the global energy mix, increasing local participation for reducing energy poverty, negotiating contracts for balanced accrual of returns and improved access to energy services, mitigating the impact of energy price volatility for universal access to energy and formulating trade, competition and investment policy for energy development. Greening international trade refers to commodity supply chains relating to clean energies. The CO2 embodied in international trade and the carbon footprint of transporting goods lead to difficulties with regard to effectively decarbonizing economies. In that context, global standards that go beyond accounting for greenhouse gas emissions are necessary. For example, agrifood standards should integrate computation of the "environmental footprint", from "farm to fork". Two activities of the programme include fuel efficiency and sustainability principles of freight transport, and the UNCTAD Biofuels Initiative.

75. One main objective of the Economic Commission for Asia and the Pacific (ESCAP) is the facilitation of consensus to promote regional cooperation to enhance energy security and the sustainable use of energy in the Asia and Pacific region. The

Asian and Pacific Energy Forum held in the Russian Federation in May 2013 was the first intergovernmental ministerial conference on energy under the auspices of the United Nations. The meeting resulted in the adoption of a ministerial declaration on regional cooperation for enhanced energy security and the sustainable use of energy in the Asia and Pacific region, and a plan of action on regional cooperation for enhanced energy security and the sustainable use of energy in the Asia and Pacific region for the period 2014-2018. With funding support from IFAD and the United Nations Development Account, ESCAP is implementing a multi-year project to widen access to modern energy services for rural communities through the Pro Poor Public Private Partnership. The project is developing national and local capacities to attract private sector investment in rural energy access with locally available renewable energy resources.

76. The Department of Economic and Social Affairs will continue to play a key role in the coordination of the activities of UN-Energy and will support the implementation of the Decade. As the UN-Energy secretariat, the Department has coordinated the participation of member organizations in the post-2015 consultation on energy and on initiative activities. The Department is also supporting the effort towards a global transformation of energy systems and is leading a public-private partnership on minimum electricity access that promotes electrification in isolated rural communities with stand-alone systems. The Department is also preparing a survey of international cooperation activities in rural areas and is organizing a global conference on capacity development for rural sustainable energy access, to be held in Ethiopia in December 2013. The Department will promote cooperation among United Nations agencies for the implementation of programmes supporting the Decade and the nexus between energy and water, health, food security, agriculture, gender and education.

77. The United Nations Industrial Development Organization (UNIDO) is involved in the delivery of technical assistance, capacity-building and policy advice in support of access by developing countries to clean and efficient energy for productive use. The Organization stands ready to support the implementation of the Decade by focusing on tangible actions and concrete initiatives enabling the global transition to a "greener" model of industrialization and economic growth. It will support Member States through initiatives that support the development of national industrial energy efficiency action plans, and promote and support the dissemination of energy management systems, standards and best policies and practices relating to energy audit and management. It is the initiative's lead organization with regard to energy efficiency and renewable energy standards, and works with GEF and the International Organization for Standardization on these topics as a high impact opportunity.

Non-governmental organizations

78. The Energy Access Practitioner Network of the United Nations Foundation draws together businesses, investors and civil society organizations working to deliver sustainable energy services to communities and households in areas with no access to electrical grids. With more than 1,300 members, the Network focuses on market-based sustainable energy applications, emphasizing mini- and off-grid solutions, and catalyses energy service delivery to achieve the objective of universal energy access by 2030. As part of the Sustainable Energy for All initiative, the

United Nations Foundation is leading an effort with WHO and the United Nations Entity for Gender Equality and the Empowerment of Women (UN-Women) to link energy access and women's health care. This multidisciplinary initiative will bring together partners from the energy and health sectors, government, business and civil society to develop and deliver decentralized, sustainable energy solutions to remote areas. The United Nations Foundation will help remote health facilities to obtain the electricity and to power the medical equipment they need to improve women's health, and drive progress toward universal energy access. The Global Partnership for Energy-Efficient Buildings is a public-private partnership aimed at helping policymakers implement policies and programmes that increase investment in energy-efficient buildings. The Global Alliance for Clean Cookstoves works to enhance access to modern energy services by creating a thriving global market for clean and efficient household cooking solutions.

79. Practical Action published the *Poor People's Energy Outlook 2013*, which focuses on the contribution that improved energy access can make to vital community services such as health, education and infrastructure services, including water and street lighting. The approach of Practical Action to achieving universal energy access focuses on total energy access, taking into consideration who has access to energy across households, businesses and in the community, and how that energy is used.

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Options for facilitating the development, transfer and dissemination of clean and environmentally sound technologies

Report of the Secretary-General

Summary

The present report, prepared pursuant to General Assembly resolution 67/203, complements the analysis, findings and recommendations contained in the report of the Secretary-General on options for a technology facilitation mechanism (A/67/348). It proposes additional background information and details on options for the way forward to facilitate the development, transfer and dissemination of clean and environmentally sound technologies. In particular, it reports on the deliberations at the workshops on the development, transfer and dissemination of clean and environmentally sound technologies in developing countries that were convened by the President of the Assembly in April and May 2013, as well as on recent written inputs received from Member States and the United Nations system.

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I. Introduction

1. The present report has been prepared pursuant to General Assembly resolution 67/203, in which the Assembly decided to hold four workshops on the development, transfer and dissemination of clean and environmentally sound technologies and the connection between clean and environmentally sound technologies and sustainable development. It also decided that the workshops would discuss, inter alia, the technology needs of developing countries, options to address those needs, capacity-building and options for a technology facilitation mechanism, taking into account existing mechanisms. The Secretary-General was requested to present a report on the discussions, options and recommendations from the workshops, including on the way forward, as well as on additional inputs from Member States and the United Nations system.

2. The need to facilitate the dissemination of clean and environmentally sound technologies has been recognized by Member States since at least 1972, when the United Nations Conference on the Human Environment, held in Stockholm, asserted that environmental technologies should be made available to developing countries on terms which would encourage their wide dissemination (principle 20). Agenda 21 and the Plan of Implementation of the World Summit on Sustainable Development included more detailed commitments on science and technology geared to facilitate technology access, transfer and dissemination.

3. More recently, the outcome document of the United Nations Conference on Sustainable Development, held in Rio de Janeiro, Brazil, in June 2012, contained a section dedicated to technology (paras. 269-276). Paragraph 269 reiterated the call to promote, facilitate and finance, as appropriate, access to and the development, transfer and diffusion of environmentally sound technologies and corresponding know-how, in particular to developing countries, on favourable terms, including on concessional and preferential terms, as mutually agreed. Pursuant to paragraph 273 of the outcome document, the Secretary-General presented a report on options for a facilitation mechanism that promotes the development, transfer and dissemination of clean and environmentally sound technologies (A/67/348).

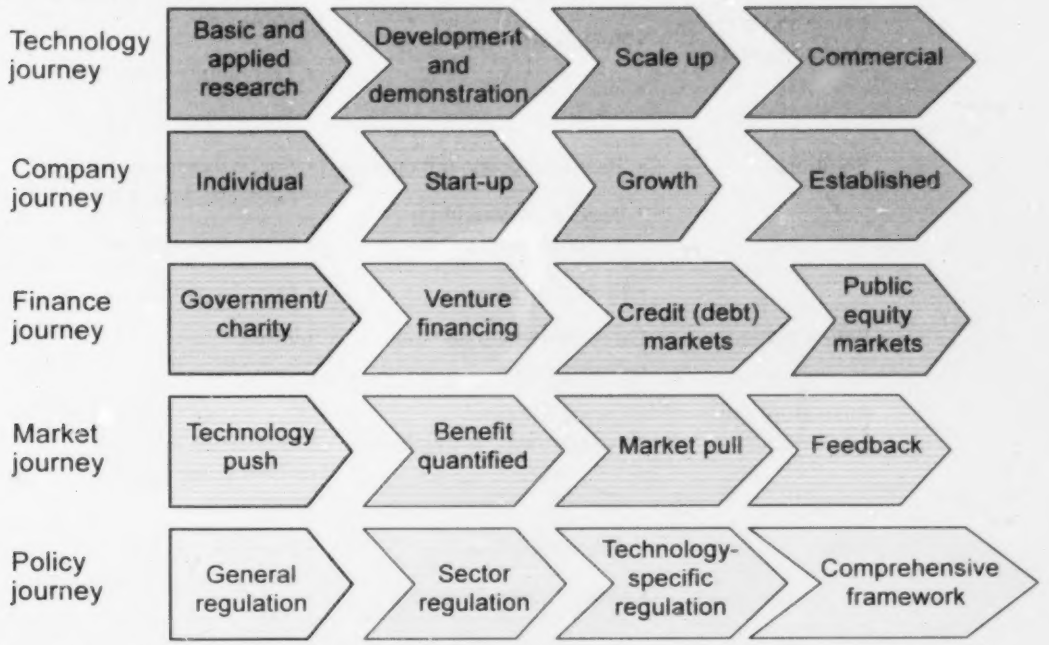
4. The report provided a synthesis of proposals received from the United Nations system for a technology facilitation mechanism and outlined recommendations for the functions, format and working methods of such a mechanism, as well as the potential way forward. It also considered proposals received by Governments and major groups in the preparatory process for the United Nations Conference on Sustainable Development. The report highlighted the challenges in addressing constraints in each stage of the technology cycle, from research, development and demonstration to diffusion in the marketplace, and emphasized the need for institutional solutions to bridge the gaps between technology stages.

5. The workshops held earlier in 2013 provided an opportunity for in-depth discussions. They validated the analysis contained in the report and emphasized the view that a comprehensive approach is needed for technology facilitation, as the challenge is broader than that of cross-border technology transfer and goes well beyond a narrowly defined technology agenda. Coordinated action by a wide range of actors is essential to rapid technology diffusion. Figure I below illustrates one such view presented at the workshops, that translating research into application

requires progress along the full technology cycle in terms of technology, business, finance, markets and policy.

Figure I

Beyond research and development: translating research into application requires progress on multiple journeys



Source: Ambuj Sagar and Bloomberg New Energy Finance, *Climate Innovation Centres: A New Way to Foster Climate Technologies in the Developing World* (2010).

6. The report of the Secretary-General provided a broad review of global trends in science and technology for sustainable development. The workshops provided further examples highlighting the increasing importance of factors and channels outside the traditional domain of science and technology policy and of official development assistance frameworks, such as trade, foreign direct investment and industrial policy, all of which have an impact on the ability of developing countries to acquire and deploy technologies. One of the perspectives presented at the workshops is summarized in table 1 below.

7. Section II of the present report reviews the understanding of and debate on technology facilitation as it arose from the workshops, while section III presents a set of actionable recommendations for the way forward on this issue in the United Nations.

Table 1
International technology collaboration and low-carbon innovation: conventional and emerging perspectives

Key themes	*Conventional notions*	*Emerging perspectives*
Movement of goods and services (technologies)	• North to South • Technology transfer • One way	• South to South, South to North • Technology cooperation • Two or more ways
Solutions	• Technical/economic options • Bias for overarching prescriptions • Piecemeal	• Social dynamics just as, if not more, important • Context matters • More systematic
Policy measures	Direct; international and national levels	Indirect
Innovators and innovation	Experts; frontier, "breakthrough" technologies	"Lay people" and experts; incremental, adaptive technologies; frugal innovation
Actors	• Donor/recipient • Often "lumped together"	• Partners; engaged throughout in a meaningful way • Heterogeneous
Channels	• Within firms is dominant (from headquarters to subsidiary) • Between firms — joint ventures and licensing (North to South) • Some triple helix[a]	• Within firms (subsidiary to headquarters) • Acquisition or majority ownership of Northern firms by Southern firms • While rare, some instances of quadruple helix[a]

Source: Presentation by Alexandra Mallett (Carleton University) at the workshops, 31 May 2013.

[a] The triple helix thesis states that the potential for innovation and economic development in a knowledge society lies in a more prominent role for the university and the hybridization of elements from university, industry and Government to generate new institutional and social formats for the production, transfer and application of knowledge. See Stanford University, Triple Helix Research Group, "The triple helix concept" (http://triplehelix.stanford.edu/3helix_concept). The quadruple helix adds civil society.

II. Range of views on key questions

A. Technology needs and options to address them

8. The present section presents a panorama of the range of views expressed and the evidence presented at the workshops and in written contributions submitted by Member States and United Nations entities.[1] The big question of what developing countries need in the area of clean and environmentally sound technology facilitation is broken down into smaller specific questions and issues around which the major debates tend to concentrate. In order to resolve the problem at hand, responses to these issues that could provide a convergence of views will be needed.

i. How big is the technology gap that developing countries are facing?

9. Data for assessing the magnitude and nature of the technology gap that developing countries are facing are limited and fragmented. This is particularly the case for smaller developing economies and the least developed countries. Indeed, most empirical evidence focuses on emerging economies, particularly India and China. There is a need for more comprehensive information on the needs of technology recipients in developing countries.[2]

10. Against this background, it is not surprising that views differ greatly on the technology gap in developing countries. Some talk about an emerging multipolar world of innovation,[3] whereas others continue to point out that the overwhelming share of innovation effort globally continues to be undertaken in developed countries. Yet others underline that the growth in developing country activity on clean and environmentally sound technologies observed in recent years is entirely concentrated in a few large developing countries and that the least developed countries continue to be severely disadvantaged, not being in a position to "leapfrog". There is scarce evidence on the magnitude of needs in the majority of developing countries that are neither least developed countries nor large developing countries.

11. An often-used rough proxy for innovation effort in a country is the ratio of total research and development expenditure against gross domestic product (GDP) (see fig. II below). It should also be noted that not every effort to generate new technologies is relevant for sustainable development. Yet, today's understanding of sustainable development is broad enough to encompass nearly every production sector and policy area.

12. It is often underlined that innovation effort measured in this way represents an even lower share of a lower GDP per capita income in developing countries

[1] An exhaustive account of the workshops is available from http://sustainabledevelopment.un.org/technology/2013workshops.

[2] Presentation by Ahmed Abdel Latif, International Centre for Trade and Sustainable Development, at the workshops.

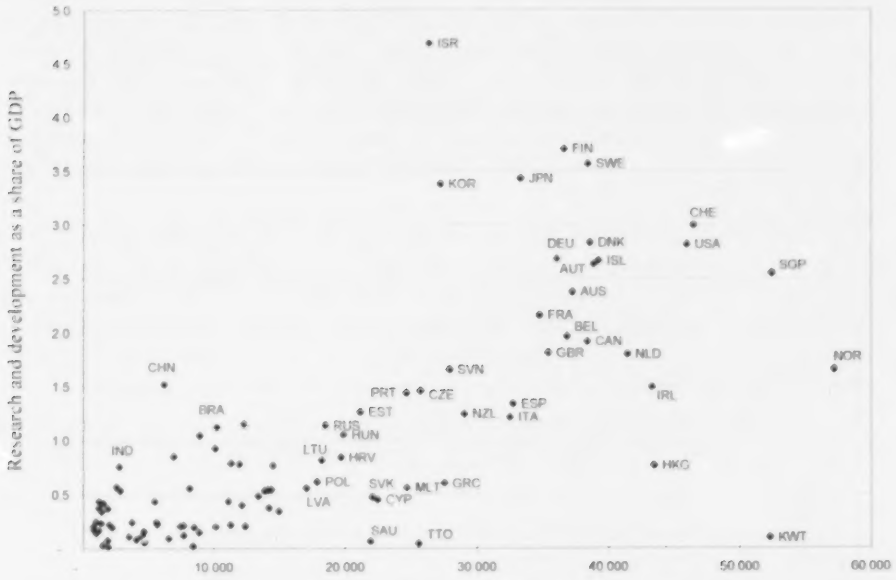
[3] See for example Francis Curry, Director General of the World Intellectual Property Organization (WIPO), "Towards a world of multipolar innovation", statement to the Seventh Ministerial Conference of the World Trade Organization, Geneva, 30 November 2009, available from www.wipo.int/about-wipo/en/dgo/speeches; or United Nations Development Programme (UNDP) and United Nations Framework Convention on Climate Change secretariat, *Handbook for Conducting Technology Needs Assessment for Climate Change* (New York, UNDP, 2010), annex 11.

compared with developed ones. Perhaps equally importantly, the research and development effort also varies significantly between countries of similar GDP per capita. Among low-income economies, the rate varies between nearly zero and 0.5 per cent. The range of variation is greater among middle-income economies, some of which have higher rates than some of the high-income economies. In particular, many smaller economies (in absolute terms) show low ratios of research and development against GDP. Against this background, peer-review-type monitoring might help Governments learn from best practice in comparable economies. Recent efforts to come up with broader measures of innovation capabilities, such as the Global Innovation Index, present a similar picture, in which some middle-income economies outperform certain high-income economies or are outperformed by some of the lower-income ones.[4]

13. It is not clear whether the absence of many countries from this picture represents the absence of evidence or evidence for weak research and development efforts. This underlines the importance of efforts (e.g. by the United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics and others) to complete the coverage and international comparability of data on innovation inputs.

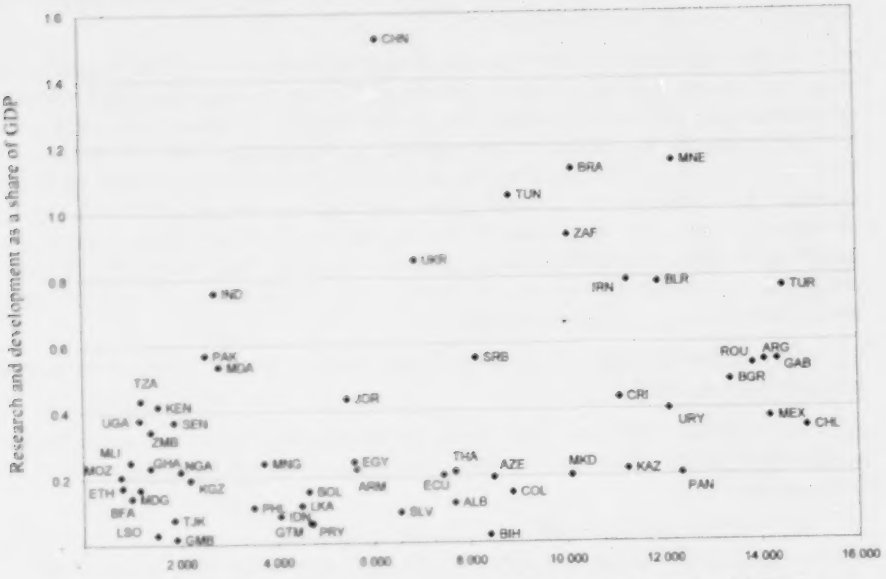
Figure II
Research and development intensity, average for 2007-2009

Global snapshot



[4] Sumitra Dutta and Bruno Lanvin, eds., *The Global Innovation Index 2013: The Local Dynamics of Innovation* (Geneva, Ithaca, New York, and Fontainebleau, France, Cornell University, INSEAD and WIPO, 2013), table 2.

Economies with gross domestic product per capita below $15,000 at purchasing power parity



GDP per capita based on purchasing power parity (current international dollars)

Source: UNESCO Institute for Statistics online database (accessed July 2013).

Note: Economies with GDP per capita below $15,000 at purchasing power parity are shown separately, as this maximizes visual clarity.

Abbreviations: ALB, Albania; ARG, Argentina; ARM, Armenia; AUS, Australia; AUT, Austria; AZE, Azerbaijan; BEL, Belgium; BFA, Burkina Faso; BGR, Bulgaria; BIH, Bosnia and Herzegovina; BLR, Belarus; BOL, Bolivia (Plurinational State of); BRA, Brazil; CAN, Canada; CHE, Switzerland; CHL, Chile; CHN, China; COL, Colombia; CRI, Costa Rica; CYP, Cyprus; CZE, Czech Republic; DEU, Germany; DNK, Denmark; ECU, Ecuador; EGY, Egypt; ESP, Spain; EST, Estonia; ETH, Ethiopia; FIN, Finland; FRA, France; GAB, Gabon; GBR, United Kingdom of Great Britain and Northern Ireland; GHA, Ghana; GMB, Gambia; GRC, Greece; GTM, Guatemala; HKG, Hong Kong, China; HRV, Croatia; HUN, Hungary; IDN, Indonesia; IND, India; IRL, Ireland; IRN, Iran (Islamic Republic of); ISL, Iceland; ISR, Israel; ITA, Italy; JPN, Japan; JOR, Jordan; KAZ, Kazakhstan; KEN, Kenya; KGZ, Kyrgyzstan; KOR, Republic of Korea; KWT, Kuwait; LKA, Sri Lanka; LSO, Lesotho; LTU, Lithuania; LVA, Latvia; MDA, Republic of Moldova; MDG, Madagascar; MEX, Mexico; MKD, the former Yugoslav Republic of Macedonia; MLI, Mali; MLT, Malta; MNE, Montenegro; MNG, Mongolia; MOZ, Mozambique; NGA, Nigeria; NLD, Netherlands; NOR, Norway; NZL, New Zealand; PAK, Pakistan; PAN, Panama; PHL, Philippines; POL, Poland; PRT, Portugal; PRY, Paraguay; ROU, Romania; RUS, Russian Federation; SAU, Saudi Arabia; SEN, Senegal; SGP, Singapore; SLV, El Salvador; SRB, Serbia; SVN, Slovenia; SWE, Sweden; THA, Thailand; TJK, Tajikistan; TTO, Trinidad and Tobago; TUN, Tunisia; TUR, Turkey; TZA, United Republic of Tanzania; UGA, Uganda; UKR, Ukraine; URY, Uruguay; USA, United States of America; ZAF, South Africa; ZMB, Zambia.

2. How do needs and options differ among developing countries?

14. Technology needs should be surveyed at the country level. It is generally accepted that both technology needs and capabilities differ among developing countries. Certain technologies may be better suited for some countries than for

others, given resource endowments, existing technological capabilities and other factors. In addition, officials and experts from a wide range of countries underline the importance of technologies being made available at a scale commensurate with sustainable development challenges.

15. Technology needs assessment has been established as a method to survey the scope and composition of a country's needs with a view to identifying and selecting environmentally sound technologies that are appropriate.[5] In order to provide support for such assessments and policy instruments in developing countries, to date the United Nations Environment Programme (UNEP) Collaborating Centre in Risoe, Denmark, has carried out 31 national technology needs assessment reports. The results of national reports are being used in the preparation of national climate strategies, including adaptation or mitigation targets and regulatory frameworks for domestic renewable energy technology manufacturing.[6] For a comprehensive assessment of needs, the following might be considered:

(a) Ensuring that all countries that could benefit from international cooperation are covered;

(b) Similar efforts to assess needs for clean technologies that are related to sustainability goals other than climate issues (e.g. waste management, agriculture, biodiversity, etc.);

(c) While national technology needs assessment reports are meant to be context-dependent and country-specific, it would also be valuable to build on the work of the United Nations Framework Convention on Climate Change secretariat in synthesizing their findings and come up with a picture of the scope and magnitude of global needs.

16. Technology needs and options can be identified more easily when an overall framework exists to help policymakers understand what mix of technology imports (including transfer), adaptation and local technology generation is appropriate for local circumstances. Table 2 is an example of a framework to establish a differentiation of focus on the basis of both the level of development and country size, proposed in the context of Climate Innovation Centres. While this represents only one perspective that narrowly focuses on climate goals, a similar framework might be useful to support the international deliberations on systemic answers to developing countries' technology needs.

[5] National technology needs assessment reports, as well as an analysis and synthesis of their findings, are available from http://unfccc.int/ttclear/templates/render_cms_page?TNA_home.

[6] See the presentation by Jorge Rogat (UNEP Collaborating Centre at Risoe) for national examples.

Table 2
Proposed framework to differentiate technology facilitation according to country size and level of development

	Large-/medium-population countries		*Low-population countries*	
	High GDP	*Medium/low GDP*	*High/medium HDI*	*Low HDI*
Scale of Climate Innovation Centre	National	National	Regional	Regional
Scope of Climate Innovation Centre	Main technology thrust	Technologies for basic energy needs; mitigation; adaptation	Mitigation; adaptation	Technologies for basic energy needs; adaptation
	Innovation process	Full range (technology research, development/ modification and deployment)	Emphasis on deployment process and strategies	Emphasis on deployment process and strategies
Need for international resources (financial, human resources)	Selective	High	Selective	High

Source: Ambuj Sagar and Bloomberg New Energy Finance, *Climate Innovation Centres*.
Abbreviation: HDI, human development index.

3. How can technology policy help to eradicate poverty?

17. Discussions on technology transfer are dominated by a focus on renewable energy and sustainable transport in the context of addressing global climate change concerns. This needs to be complemented by greater attention to clean and environmentally sound technologies in other sectoral activities that are relevant for development and poverty eradication. Agriculture is one of these, as it plays a key role in poverty eradication and necessitates an integrated look at many issues in which technology solutions are relevant, including water, land use and biotechnology.

18. Development and poverty eradication tend to be the immediate and highest priority of policymakers in developing countries. In order to foster the development and dissemination of technologies relevant for agriculture and poverty eradication in general, there is a need to reconcile a number of different perspectives:

(a) The view advanced by some analysts and policymakers, particularly in Asia, that many of the clean and environmentally sound technologies needed by developing countries "are not there" and thus there is a need for a government-driven, "big-push" effort similar to the Green Revolution in the 1970s;

(b) The view that much of the effort to develop transformative technologies that can decouple growth from environmental degradation needs to take place in the leading developed countries;

(c) Calls for a fundamental paradigm shift in the predominant agrifood system with institutional change, capacity development and investment in order to move towards a sustainable production system and consumption patterns and agriculture that is multifunctional and addresses the resilience needs of small-scale and family farmers;[7]

(d) The view advanced by some civil society organizations and others that people no longer live in the technocratic policy world of the 1970s and that greater attention ought to be paid to technology assessment and technology solutions developed through the direct participation and consultation of social movements and local communities.[8]

19. These perspectives are not necessarily irreconcilable. However, any United Nations system-wide effort to accelerate technology development and diffusion in agriculture and other sectors with a direct bearing on poverty needs to articulate how they can be made to work in synergy.

4. Is the world close to critical mass for a global big push for renewable energy?

20. Renewable energy is where much of the action is regarding clean and environmentally sound technologies, from their invention to international efforts on dissemination, and yet it is also the area where the sense of urgency and the risk of "too little, too late" is most acutely felt.

21. Developing countries need to have adequate and affordable supplies of energy in order to meet developmental challenges, since energy services are closely interlinked with social, human and economic development. The challenge of energy access is particularly critical: more than 1.6 billion people are without electricity, and 2.6 billion depend on traditional biomass for their household cooking needs.[9] Providing modern forms of energy — electricity and clean cooking energy — to the energy poor is an urgent need.

22. At the same time, the gap between what needs to be done to avoid a 2°C temperature rise and what has been pledged in recent sessions of the Conference of the Parties to the United Nations Framework Convention on Climate Change needs to be closed.

23. A global collective action programme in the area of sustainable energy could be within reach. For example, efforts inspired by the Sustainable Energy for All initiative support a framework for establishing, monitoring and helping national efforts that could, under the right circumstances, double the share of modern renewable energy against global energy consumption by 2030 (fig. III).

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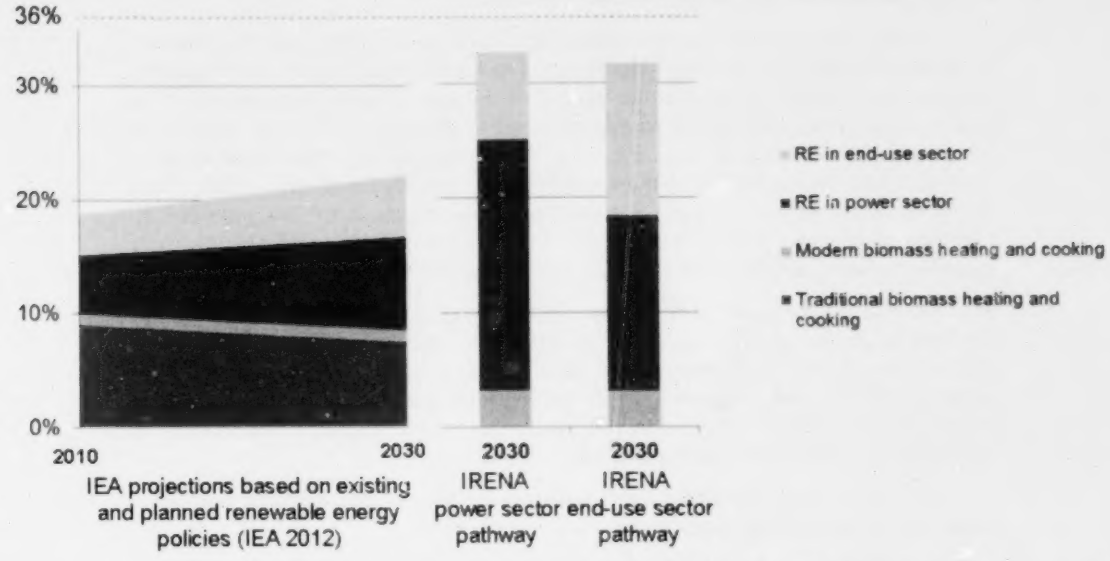
[7] Presentation by Hans R. Herren, President of the Millennium Institute.

[8] Presentation by Neth Daño, Action Group on Erosion, Technology and Concentration.

[9] Presentation by the Chief of the Policy Development and Coordination, Monitoring and Reporting Service of the Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States.

Figure III
Global renewable energy projections, International Renewable Energy Agency



Source: Presentation by Imran H. Ahmad, Senior Programme Officer (Regions), International Renewable Energy Agency; and International Renewable Energy Agency, "A path to doubling global renewable energy (REMAP 2030)", policy brief, 2013.
Abbreviations: IEA, International Energy Agency; IRENA, International Renewable Energy Agency, RE, renewable energy.

24. However, in order to elevate the international cooperation efforts in renewable energy into a decisive global action programme, there is a need to bring about a shared understanding of key problems and options to address them, including the following:

(a) In renewable energy, some commentators support the view that "the technology is there" and that, at the international level, the key issue is deployment. At the same time, others argue that there are few technologies for adaptation and most of them are focused on major developing countries. This reveals a need to clarify and quantify the balance of international action needed to foster further science and research in this area;

(b) It is often observed that capabilities are found in countries that are already doing well. Need is highest in the least developed countries;

(c) There is a need to address the current artificial divide in the world between climate mitigation and energy access. International assistance is currently focusing on polluters but should instead concentrate resources on non-polluters/low emitters and foster their access to clean energy;

(d) There are conflicting perceptions regarding the benefits of the growing share of a few major emerging economies in the production and export of key renewable energy technologies, such as wind turbines or photovoltaic cells, at competitive cost. International dialogue in this area could help disentangle mercantilist objectives from global sustainability objectives.

B. Capacity-building

1. Is it fragmentation or necessary decentralization?

25. A large number of capacity-building activities are on offer or in development in the area of clean and environmentally sound technology facilitation at the bilateral, regional and global levels. Further activities are being continually proposed by international organizations and partnerships, some of which have been included in the proposals submitted in response to a request for input by the Department of Economic and Social Affairs of the Secretariat in May 2013 and are available from the workshops' website. Figure 3 contained in document A/67/348 provided an overview of United Nations contributions and partnerships, many of which include capacity-building activities along the different stages of the technology cycle.

26. Despite the large number of capacity-building activities on technology, the question arises as to whether these activities are commensurate with the need. Discussions at the workshops have highlighted a perceived fragmentation of capacity-building and, in general, of all international technology facilitation efforts in this area. In order to progress in addressing this fragmentation, it is necessary to understand to what extent the fragmentation implies that:

(a) There are significant gaps with regard to capacity-building and other international cooperation needs that are not served; and/or

(b) There are important overlaps or insufficient coordination between existing bodies; or, alternatively

(c) There is simply a large array of challenges and responses to them, with a diverse set of organizations offering capacity development within an open system for experimentation and specialization.

27. The presentations and discussions at the workshops have lent support to the view that, with the exception of the work of UNESCO, most capacity-building relates to the later stages of the technology cycle, notably diffusion, while there is relatively little emphasis on strengthening the capabilities of developing countries to undertake earlier-stage activities, such as research and development. This is a serious issue, as one of the major constraints in most developing countries is the shortage of basic science and research capabilities. Even when a given technology can be transferred on preferential terms to a developing country, benefiting fully from it in a sustained manner usually depends on indigenous technological capabilities and the availability of numerous ancillary skills and management capabilities across the economy.

28. At the same time, those who believe that stronger coordination is necessary need to elaborate how the global coordination and oversight of existing bodies and initiatives can preserve the ability of individual countries to select international assistance programmes most appropriate to their needs. Those who favour the present decentralized or fragmented panorama need to explain how this can ensure rational outcomes that are commensurate with the needs, given that the set-up and maintenance of initiatives are not necessarily driven by the countries most in need.

29. Improvements to international capacity-building activities could include some of the following:

(a) Information clearing house-type activities that help countries to navigate the complex geography of institutions providing technology facilitation services internationally;

(b) Fostering, broadening and generalizing new international initiatives that help connect existing "fragments" through collaborative partnerships between them. The workshops highlighted examples, such as the Climate Technology Centre and Network, which brings together research, academic, national and international institutions and think tanks (see fig. IV);

(c) Developing the capability to map out and quantify the international capacity-building support needed and the ability to monitor the extent to which this need is being served.

Figure IV
Climate Technology Centre and Network consortium

Source: Presentation by Morgan Bazilian, National Renewable Energy Laboratory.
Abbreviations: CATIE, Tropical Agricultural Research and Higher Education Centre; CSIR, Council for Scientific and Industrial Research; ECN, Energy Research Centre of the Netherlands; ENDA, Environment and Development Action in the Third World; GIZ, Deutsche Gesellschaft für Internationale Zusammenarbeit; ICRAF, World Agroforestry Centre; NREL, National Renewable Energy Laboratory; TERI, The Energy and Resources Institute; UNIDO, United Nations Industrial Development Organization.

2. What can South-South and triangular cooperation contribute?

30. North-South cooperation in the area of technology facilitation enjoys one clear advantage. As a result of international commitments, for example in relation to article 4, paragraph 5, of the United Nations Framework Convention on Climate Change, countries have an incentive to report their activities as part of their obligation to promote, facilitate and finance, as appropriate, the transfer of or access to environmentally sound technologies and know-how to other Parties, particularly developing country Parties.[10] More generally, official development assistance (ODA) from developed to developing countries for environmental and other sustainability objectives is reported within an internationally comparable and verifiable

[10] See for example http://unfccc.int/ttclear/pages/bilateral_support.html.

framework.[11] However, there is no global framework for monitoring development cooperation activities between developing countries or triangular ones, and knowledge on these is anecdotal.

31. Bilateral cooperation between larger economies is a key element of international facilitation in the area of clean and environmentally sound technologies. Along with North-South initiatives (e.g. the United States-China Clean Energy Forum, the United States-India Partnership to Advance Clean Energy, European Union-India solar energy cooperation, the Green Future Action Corps of Japan and the newly established United States-China Working Group on Climate Change), important cooperation programmes exist between major emerging economies (e.g. the China-India Climate Change Cooperation Accord and the India-Brazil-South Africa Dialogue Forum, the latter focusing on energy and medical technologies). Cooperation between Brazil and Mozambique in the area of antiretroviral medicine is a notable example of South-South cooperation with an impact on a least developed country (see box 1), which highlights the technological potential in the more advanced developing economies that could contribute to enhancing technology facilitation.

Box 1

Fundação Oswaldo Cruz, Ministry of Health, Brazil

Key features of the country's technology cooperation with Mozambique in the area of antiretroviral medicine include:

- The sheer scale of experience and capability that Brazil can leverage in the case of Fundação Oswaldo Cruz, which was founded in 1900 under the Ministry of Health and currently has 22 scientific and technological institutes, 12,000 staff (including 900 PhDs), a budget of more than US$ 1 billion and 1,800 projects generating more than 1,000 scientific papers each year.
- The sheer scale of the challenge in Mozambique: 18 per cent of the population has HIV/AIDS, with treatment reaching less than 40 per cent of adults and 25 per cent of children who are infected; 80 per cent depend on medicines supplied through foreign donations.
- Creation of a public enterprise in Mozambique for the sustainable production of antiretroviral and other medicines, including human resources training, technology transfer and technical assistance in good manufacturing and management practices and international certification, among others.
- Assistance in strengthening the local regulatory agency and aligning other health policies.
- Joint financing by Brazil (public and private funds) and Mozambique.

Source: Presentation by Lícia de Oliveira, Fundação Oswaldo Cruz.

[11] See www.oecd.org/dac/environment-development/statisticsonenvironmentalaid.htm. This does not mean that there are no issues with respect to the classification of specific ODA flows as contributing to sustainability.

32. The following could help to better understand and foster the contribution of cooperation among countries both within and across development stages:

(a) Building international dialogue to foster complementarities between North-South and South-South initiatives and ensuring that there are no major gaps left in cooperation activities;

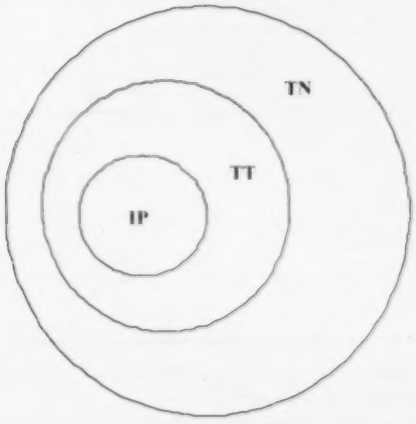
(b) Identifying new opportunities for triangular or multi-sided cooperation that would combine the relative strengths of multiple cooperation partners, no matter their level of development, in addressing critical sustainability technology needs;

(c) Extending and/or strengthening international frameworks for monitoring and tracking international assistance for sustainable development and technology facilitation to include improved measurement and accounting for technology transfer and to cover activities by developing countries in an internationally comparable manner.

3. How should intellectual property issues be addressed in the context of technology facilitation?

33. The role of intellectual property with respect to technology facilitation remains controversial. Figure V depicts a proposal on how to consider this issue. Previous discussion in the present report and the workshops underpinning it suggest that technology transfer as such represents only a part of the bigger problem of nurturing developing countries' capacity to develop or absorb and utilize imported clean technologies in a durable manner. In turn, intellectual property protection is only one of many factors that affect technology transfer.

Figure V
Relative importance of intellectual property protection



Unknowns/disagreements: TT/TN = ? IP/TT = ? → IP/TN = ??

Note: The relative sizes of spheres in the representation are purely arbitrary.
Abbreviations: TN, technology needs of developing countries; TT, technology needs of developing countries that require technology transfer; IP, technology transfer needs where intellectual property protection is a significant constraint.

34. The workshops echoed the inconclusive discussion on the role of intellectual property protection, with some panellists emphasizing its facilitative role and others pointing to ways in which it can pose a barrier to technology transfer. They shed light on the complexity of the issue and the need to consider intellectual property on a case-by-case basis, since its importance either as a facilitator or as a barrier varies greatly, depending on the industry and the technology. In addition, intellectual property systems vary greatly across countries, as they have considerable discretion in designing systems that they find best suited to their development.[12]

35. A key concern behind calls for further international action is the observation that intellectual property ownership is highly concentrated. While clean technology patenting has increased by 20 per cent each year since Kyoto, 80 per cent of clean energy patents are owned by entities in six countries (Japan, United States of America, Germany, Republic of Korea, United Kingdom of Great Britain and Northern Ireland and France), according to a survey conducted by the International Centre for Trade and Sustainable Development.[13] The licensing of clean technology to developing countries is also concentrated in big emerging economies. The survey suggests that the majority of technology owners never license clean technologies to developing countries. More importantly, the survey adds support to the view that intellectual property protection is one among a number of important factors (scientific capabilities, investment climate, etc.) affecting the propensity to license technology or enter into cooperation with a developing country (table 3).

Table 3

Factors affecting licensing or cooperation with developing countries

(Percentage of respondents)

"When your organization is making a decision whether or not to enter into a licensing or cooperative development agreement with a party in a developing country, to what extent would the following factors positively affect your assessment?"

	Protection of intellectual property rights	*Scientific capabilities and infrastructure*	*Favourable market conditions*	*Favourable investment climate*
Not a factor	18	13	16	15
A basic precondition for doing business but not a driving factor	28	37	26	27
Significantly attractive condition, would encourage negotiation	29	37	44	42
Compelling reason towards an agreement	25	13	14	16

Source: UNEP, European Patent Office and International Centre for Trade and Sustainable Development, *Patents and Clean Energy*.

Note: Sample size of 160 organizations, two thirds of which are private companies.

[12] WIPO has undertaken active capacity-building efforts to support the development of suitable national intellectual property regimes. Examples include technology and innovation support centres (www.wipo.int/tisc/en) and technical assistance activities (www.wipo.int/global_ip/en/activities/technicalassistance).

[13] UNEP, European Patent Office and International Centre for Trade and Sustainable Development, *Patents and Clean Energy: Bridging the Gap between Evidence and Policy* (2010).

36. Beyond transborder flows of technology and knowledge, a cursory look at the recent evolution of intellectual property filings worldwide appears to confirm the picture of concentration (table 4), with developing countries other than China representing a small and, in some respects, declining share of global totals. However, these numbers have to be handled with great care, as not every patent, trademark or design is of equal value and, as previously stated, their importance varies by sector. Thus, individual countries' different economic specializations are bound to generate some differences in intellectual property registration propensities. It is also important to bear in mind that those developing countries that have made significant progress in strengthening intellectual property protection domestically may be seeing faster growth in intellectual property filings in their offices, accounting for lower global shares in countries that have not done so.

Table 4
Intellectual property filings by office and income group

	Share of world total (percentage)						
	Patents		*Trademarks (class count)*		*Designs (design count)*		*GDP at market prices*
Office and income group	*2008*	*2011*	*2008*	*2011*	*2008*	*2011*	*2011*
High-income countries	74.8	67.0	52.8	45.1	44.9	37.2	68.2
China	15.1	24.6	12.8	22.8	43.6	53.1	10.0
Other upper-middle-income countries	7.1	5.2	22.7	21.1	8.4	6.4	14.6
Lower-middle-income countries	3.0	3.2	10.4	9.9	2.8	3.1	6.8
Low-income countries	0.1	0.0	1.3	1.0	0.3	0.2	0.7
World	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Adapted from the World Intellectual Property Organization (WIPO) statistics database, October 2012, cited in WIPO, *World Intellectual Property Indicators 2012* (Geneva, 2012). GDP shares calculated from world development indicators, available from http://data.worldbank.org.

37. Despite these caveats, it is worth noting that China accounts for the most significant increase in the use of codified and protected knowledge offered by the intellectual property protection system. In addition, the better-known examples of bilateral or multilateral technology cooperation agreements (European Union-India, United States-China, United States-India, China-India, India-Brazil-South Africa) do address intellectual property issues by including specific provisions on the ownership of intellectual property arising from them.

38. There is a need to generate a greater sense of shared diagnosis and shared objectives on a number of key questions in relation to intellectual property protection, especially in relation to clean and environmentally sound technologies:

(a) There is a need to better understand patenting landscapes for clean and environmentally sound technologies in developing countries and, in particular, identify concrete cases where intellectual property rights do pose an obstacle towards technology transfer;

(b) There is a need to better understand the role of non-patented know-how for clean and environmentally sound technologies and how such know-how is best transferred;

(c) Concerns about the use of intellectual property for reasons other than protecting genuine inventions or innovations include whether worries about the strategic use of patenting and the proliferation of patents and questions about their quality are justified; whether the existing information repositories (e.g. PatentScope, WIPO) or capacity-building efforts by international organizations and norm-setting activities to improve the quality of patenting are sufficient; and what more can be done and where it should be done;

(d) Fast-tracking of clean technology patents: whether this option is promising enough to be pursued more widely and what lessons emerge from its practice in a number of countries;

(e) Granting flexibilities to the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) in the form of compulsory licensing or exhaustion for clean and environmentally sound technologies on grounds (recognized by the Doha Declaration on the TRIPS Agreement and Public Health of 2001 with respect to essential medicines) that these represent a matter of national emergency. However, some strongly doubt that following the example of the case of essential medicines is relevant in this case, in view of the vast range of clean and environmentally sound technologies;

(f) Whether stronger intellectual property protection by developing countries helps or hinders their capacity to generate or receive transfers of clean and environmentally sound technologies: some studies indicate that an effective intellectual property system may be a prerequisite for companies to enter into technology transfer agreements. However, the incidence of intellectual property varies by sector, and it is recognized that little is known of climate adaptation technologies, beyond the experience of China and India, in this regard. All this warrants a focus on generating more comprehensive empirical evidence on this question;

(g) Whether there is convincing evidence of the potential of new approaches to intellectual property management, such as "socially responsible licensing",[14] patent pools and funding for key patent acquisition, to offer pragmatic solutions and the potential for scaling them up to be able to offer significant solutions to technology gaps in developing countries;

(h) There is also a need to explore what possibilities would be offered by granting preferential access to patents arising from publicly financed research. In renewable energy, more than half of global research and development spending was publicly financed in recent years, owing partly to green stimulus in several large economies.[15]

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[14] See for example University of California Berkeley, Office of Intellectual Property and Industry Research Alliances, "Socially responsible licensing and IP management". Available from http://ipira.berkeley.edu/socially-responsible-licensing-ip-management.

[15] UNEP and Bloomberg New Energy Finance, *Global Trends in Renewable Energy Investment 2012* (Frankfurt, Frankfurt School of Finance and Management, 2012).

39. The special conditions of least developed countries regarding intellectual property protection in the context of clean and environmentally sound technologies are recognized in international commitments. However, a possible contradiction has been noted between article 66, paragraph 2, of the TRIPS Agreement, which commits developed countries to promoting technology transfer to least developed countries, and article 66, paragraph 1, which exempts least developed countries from the obligation to provide national treatment and most-favoured-nation treatment in the area of intellectual property, which may be operating as a disincentive to technology transfer.[16]

40. There is an ongoing effort to design an international partnership that can address the needs of least developed countries in relation to intellectual property protection and broader technology facilitation issues through a proposal to create a technology bank for least developed countries (see box 2). Institutional and policy innovation in this area is welcomed by the least developed countries.[17]

Box 2
Technology bank for the least developed countries

In follow-up to the commitments made in the Istanbul Declaration and the Istanbul Programme of Action, adopted at the Fourth United Nations Conference on Least Developed Countries, held in 2011, and pursuant to resolution 67/220, the report of the Secretary-General on a technology bank and science, technology and innovation supporting mechanism dedicated to the least developed countries (A/68/217) proposed a technology bank with the following components:

(a) A patents bank to help least developed countries obtain access to and utilize appropriate technologies, including:

(i) A licensing facility to help least developed countries secure relevant intellectual property at negotiated or concessionary rates;

(ii) Technical assistance in identifying appropriate technologies;

(iii) An enforcement mechanism ensuring the use of such intellectual property in least developed countries only, as well as an arbitration mechanism;

(iv) Assistance in protecting intellectual property rights derived by inventors from least developed countries;

(b) A science, technology and innovation supporting mechanism to help improve least developed countries' scientific research and innovation base, including:

(i) Support to building least developed countries' endogenous human and institutional capacity for acquisition and adaptation technologies;

[16] Presentation by George Dragnich, Consultant, Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States.

[17] Statement made by Bangladesh on behalf of least developed countries at the workshops.

(ii) Assistance with the establishment of technology incubators in universities in least developed countries and support for information and communications technology connectivity, especially at the campus "last mile";

(iii) Support with marketing least developed countries' research results and improving intellectual property rights management capability;

(iv) Leveraging least developed countries' diaspora knowledge networks;

(c) A science and technology research depository facility to promote global networking of researchers and research institutions in least developed countries, including:

(i) Support for least developed countries in obtaining access to scientific literature by building on the existing Research4Life initiative, a United Nations public-private partnership;

(ii) Assistance with brokering least developed countries' research collaboration through partnerships with advanced-economy and developing world institutions, as well as triangular cooperation;

(iii) Research support and networking services for researchers from least developed countries;

(iv) Capacity-building support in order to expand the publication of scientific work in least developed countries in peer-reviewed journals.

In the context of the technology bank for the least developed countries, Heads of State and Government welcomed, in the Istanbul Declaration, the generous offer of the Government of Turkey to host an international science, technology and innovation centre. Strong global support involving all the development partners, as well as countries from the South, will be central to its effectiveness. The report of the Secretary-General proposes further consultations, to be serviced by the Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, to work out the institutional details of the technology bank.

III. Options for a way forward

41. The review above reveals that: (a) technology needs have not been mapped systematically; and (b) views vary significantly as to whether the international programmes and mechanisms to assist in terms of capacity-building correspond to the needs. In any event, in the absence of a shared understanding of needs, it would have been surprising to see agreement on whether there is sufficient international support at hand to meet them. Bearing this in mind, the following paragraphs represent an effort to identify those recommendations around which agreement for collective action could be built.

42. On the basis of discussions at the workshops and written contributions by Member States and United Nations system organizations, three groups of recommendations are presented. The first consists of initiatives that can be acted on without institutional reform. The second includes actions that individual countries or groups of countries could add to the former on a voluntary basis. The third category presents a set of more comprehensive and ambitious initiatives that have been proposed by participants but are not universally accepted. If momentum for collective action could be generated around the first and perhaps the second set of recommendations, options in the third category could be reappraised in due course.

43. This approach is encouraged by one key finding: throughout the discussions at the United Nations on this subject, no one questioned that accelerating technology facilitation (i.e. dissemination of technologies across national frontiers and economic development levels) is a shared objective of all Member States, international organizations and other stakeholders or that international cooperation in this area should be fostered.

44. However, different views were expressed on the details and the overall approach for the way forward. To move beyond the current stalemate in the debate on whether a global facilitation mechanism is essential, it is important to generate more hard data and evidence on what exactly is needed and how best to achieve it.

45. If a meeting of minds is to occur, those who currently oppose further initiatives need to be reassured that the purpose of the exercise is not the generation of mandatory technology transfer requirements. On the other hand, those who want a global technology facilitation mechanism need to be reassured that the purpose of further discussions is not to "kick the can down the road".

A. Initiatives that can be acted on without institutional reform

Recommendation 1
Conduct broad, methodical and periodic examinations of needs, gaps and achievements in the development, transfer and dissemination of clean and environmentally sound technologies.

46. Ad hoc workshops can enrich international dialogue, but they alone cannot provide a process towards the tangible convergence of views. What is needed is an intergovernmental "locus" with the participation of relevant stakeholders and backed by professional expertise, to monitor how needs and efforts to address them are evolving. Thus, it is proposed that intergovernmental discussions be held periodically — within an existing framework, such as the United Nations high-level political forum for sustainable development — on global reports on developing countries' technology needs, prepared by the Secretariat as part of an agreed work programme and discussed in special sessions expanded to include outside experts, as well as specialists from relevant United Nations entities. A summary of findings might be included periodically in the envisaged global sustainable development report. Such deliberations could focus on some of the questions highlighted in section II of the present report and, along with other deliberations referred to in subsequent recommendations, would constitute one dimension of the overall work of the high-level political forum on sustainable development.

Recommendation 2

Strengthen the capacity to help all countries in converging to best practice in data availability regarding science, research and development and technology inputs and outcomes according to internationally comparable methodologies.

47. This would require building on existing efforts by the Statistics Division of the Department of Economic and Social Affairs, the UNESCO Institute for Statistics, WIPO, the Organization for Economic Cooperation and Development and others by tailoring technical assistance to address data availability, quality and timeliness gaps. It would also include support for methodological work to adequately track innovation inputs and outputs that are relevant for sustainable development and address the dearth of information on smaller and poorer developing economies. While the activity to be measured (research and development, patenting, etc.) may be relatively small in many countries, it will be important to reveal reliable information on the differentials among otherwise comparable economies. That in turn can help better target technology facilitation. In addition, a serious measurement effort can, in itself, have a positive impact on the propensity to allocate resources (including from official aid) to technological development. The high-level political forum could assist with this effort by providing a venue in which its results are given intergovernmental attention.

Recommendation 3

Build/foster a global reporting system covering all multilateral and bilateral capacity-building activities, as well as demonstration and pilot projects on clean and environmentally sound technologies.

48. This should encompass improved methodologies and indicators for measurement of international technology cooperation and technology transfer. One possible benefit would be the facilitation of the measurement of progress and accountability in the context of a post-2015 development agenda centred on poverty eradication and other sustainable development goals.

49. The system could build on the creditor reporting system on ODA and could be developed in synergy with it. Ideally, it would combine reporting by all countries of all inflows and outflows of technology-related assistance. It would build on and systematize ad hoc efforts, such as those tracking voluntary commitments and partnerships from the United Nations Conference on Sustainable Development, with a higher degree of granularity on assistance relating to clean and environmentally sound technologies than can be found in traditional aid statistics. It would also develop ways to make qualitative information on capacity-building activities available. It would strive to address the current dearth of information outside the renewable energy sector and would be based on global surveys intended to map the reach of capacity-building activities and the extent to which needs are effectively served.

Recommendation 4

Mobilize United Nations support for the agreed technology bank for least developed countries.

50. As indicated above, the United Nations system provides a wide range of capacity-building activities in the area of technology. A number of United Nations system organizations have been supporting the Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island

Developing States in the work on the technology bank for least developed countries and should be encouraged to continue to do so. In view of those countries' capacity constraints, it would be important to mobilize expertise and capacity-building resources in all relevant United Nations system entities in order to support least developed countries in making full use of the agreed technology bank.

Recommendation 5
Facilitate intergovernmental dialogue on the transfer of publicly owned or funded technologies.

51. This could be initiated by an expert study on existing means, gaps and additional options with regard to the transfer of publicly owned or funded technologies to be discussed by an ad hoc voluntary group of countries with a view to reporting options for action by the high-level political forum. If it so decides, the group could constitute an informal "friends of international technology cooperation" group to advance intergovernmental dialogue on how to strengthen technology facilitation.

B. Additional, voluntary actions for consideration by countries

Recommendation 6
Promote voluntary national peer reviews of clean and environmentally sound technology needs, as well as options and outcomes in addressing them.

52. The reviews would be conducted within a framework that reconciles individual tailoring and learning from peers in similar situations. They could be discussed at special sessions under the aegis of the high-level political forum, possibly as part of the forum's assumption of the responsibilities of the annual ministerial review. They would need to build on and be coordinated with ongoing sector-specific country review processes (e.g. technology needs assessment in renewable energy) and would encompass all aspects of sustainable development. Development partners could also be invited to conduct voluntary reviews of their international cooperation activities in technology facilitation for sustainable development, in particular in support of developing countries' efforts to achieve sustainable development goals, once agreed.

Recommendation 7
Consider a sustainable development goal and/or targets in the area of technology.

53. A sustainable development goal in this area could be most useful if focused on removing barriers to and increasing competition for the development, dissemination and transfer of technological solutions relevant to sustainable development.

C. More comprehensive and ambitious initiatives with institutional implications

Recommendation 8
Create a forum within the United Nations (perhaps most appropriately under the auspices of the high-level political forum) for regular expert-informed intergovernmental dialogue on how best to facilitate and accelerate international technology cooperation for sustainable development, notably for the development, dissemination and transfer of clean and environmentally sound technologies.

Recommendation 9
Create a United Nations global technology facilitation mechanism.

54. Going beyond the provision of a forum for discussion, the high-level political forum could launch a mechanism involving the creation and/or scaling up of several initiatives, as proposed in paragraph 86 of the report of the Secretary-General on options for a facilitation mechanism that promotes the development, transfer and dissemination of clean and environmentally sound technologies (A/67/348), such as:

(a) A technology development and transfer fund to assist with the transfer of privately owned technologies relevant in responding to urgent global sustainability challenges;

(b) Global networks of national organizations relevant to different stages of the technology life cycle, such as science foundations, business incubators and intellectual property registration bodies;

(c) An international network of research/innovation policymakers that brings together representatives from technology leader countries, as well as developing countries, including least developed countries, to discuss options for promoting technology cooperation that can address sustainable development challenges faced by developing countries and, in particular, the poor and the vulnerable;

(d) Public-private-civil society partnerships designed to foster technology cooperation and the transfer of key technologies needed to advance progress towards specific sustainable development goals.

Recommendation 10
Develop a comprehensive and fact-based understanding of the role of intellectual property with respect to the development and transfer of clean and environmentally sound technologies and explore the basis for developing a special international intellectual property rights regime for a range of technologies relevant to sustainable development.

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Agriculture development, food security and nutrition

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Report of the Secretary-General

Summary

International efforts to ensure sustainable agriculture development and food security continue to address the challenges of malnutrition, poverty and gender inequality, while adapting to the challenges posed by shifting markets, environmental pressures and climate change. There is an emerging consensus within the international community that actions along multiple dimensions are required to ensure food security. Those dimensions include food production, trade, access, consumption and utilization. Acting on them comprehensively is essential to ensure that linkages between food security and nutrition and various parts of the sustainable development agenda are addressed. Such multidimensionality and linkages signal the need to promote a holistic notion of food systems and to acknowledge the challenges confronting food systems in the current global environment.

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I. Introduction

1. In its resolution 67/228 on agriculture development and food security, the General Assembly, among other things, requested that the Secretary-General report to the Assembly at its sixty-eighth session on matters highlighted therein, including implementation of national, regional and international development policies, taking into account the importance of enhancing synergies among sustainable agriculture practices, biodiversity, food security and nutrition. The present report has been prepared in response to that request.

2. Food security and nutrition are essential dimensions of sustainable development. Inadequate food security and nutrition take an enormous toll on economies and have negative consequences for the livelihoods and economic capabilities of vulnerable populations. A world in which all enjoy freedom from want and progressively realize their right to adequate food and nutrition can be realized only through far-reaching changes, supported by policies and programmes promoting sustainable development in all dimensions. Increasing agricultural production to meet the nutritional needs of a growing world population in a sustainable manner is at the centre of such a transformation and at the heart of poverty eradication.

3. In 1992, Member States adopted Agenda 21,[1] declaring that "major adjustments are needed in agricultural, environmental and macroeconomic policy, at both national and international levels, in developed as well as developing countries, to create the conditions for sustainable agriculture and rural development". Twenty years later, although significant progress has been made in advancing awareness and the implementation of policies for sustainable agriculture, hunger and malnutrition persist. At the United Nations Conference on Sustainable Development, held in Rio de Janeiro, Brazil, in 2012, world leaders reaffirmed the need to "promote, enhance and support more sustainable agriculture ... that improves food security, eradicates hunger and is economically viable, while conserving land, water, plant and animal genetic resources, biodiversity and ecosystems and enhancing resilience to climate change and natural disasters".[2]

4. The present report examines the progress and challenges to date in achieving food and nutrition security and provides an overview of progress in implementing sustainable agricultural policies in line with the outcome of the United Nations Conference on Sustainable Development and international agreements that guide the implementation of policies on sustainable agriculture, food security and nutrition. Key messages from the coordination team for the Secretary-General's High-level Task Force on Global Food Security, as well as reports of the Food and Agriculture Organization of the United Nations (FAO), the International Fund for Agricultural Development (IFAD), the World Food Programme (WFP) and other sources, have provided content.

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[1] *Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992*, vol. I, *Resolutions Adopted by the Conference* (United Nations publication, Sales No. E.93.I.8 and corrigendum), resolution 1, annex II.

[2] Resolution 66/288, annex, para. 111.

II. Current challenges to agriculture development and food security in the world

5. *The State of Food Insecurity in the World 2012*[3] presents new estimates of undernourishment based on a revised and improved methodology. The new estimates show that progress in reducing hunger during the past 20 years has been better than previously believed and that, given renewed efforts, it may be possible to reach the Millennium Development Goals target of halving the proportion of people who suffer from hunger by 2015. With 868 million people suffering from chronic undernourishment, however, the number remains unacceptably high and eradication of hunger continues to pose a major global challenge. Furthermore, this number represents only a fraction of the global burden of malnutrition. An estimated 26 per cent of the world's children are stunted and 2 billion people suffer from one or more micronutrient deficiencies.[4]

6. Underlining the fact that strong political leadership and appropriate policies can produce dramatic reductions in levels of hunger and malnutrition, FAO recently announced that 38 countries had already halved either the number or the percentage of hungry people ahead of the deadline for the Millennium Development Goals in 2015. Much of the activity involves cooperation among developing countries. Significant progress has been made since 1990 to reduce rates of undernourishment, child stunting, underweight, micronutrient deficiencies and child mortality.[5] Progress has, however, been uneven and subject to setbacks caused by food price increases, conflict and other shocks, in particular since 2007.[6]

A. Economic situation

7. The Organization for Economic Cooperation and Development (OECD) and FAO, on their website for the *Agricultural Outlook 2013-2022* (www.agri-outlook.org), report that agriculture has been turned into an increasingly market-driven sector, as opposed to a policy-driven sector as in the past. This shift offers developing countries important investment opportunities and economic benefits, given their growing food demand, the potential for expansion of production and their comparative advantage in many global markets. Production shortfalls, price volatility and trade disruption remain a threat to global food security, however. The report warns that, as long as food stocks in major producing and consuming countries remain low, the risk of price volatility is amplified. A widespread drought, such as that experienced in 2012, on top of low food stocks, could raise world prices by 15 to 40 per cent.

8. The FAO food price index remains somewhat volatile, averaging 211.3 points in June 2013, nearly 11 points higher than the previous year, but below the peak of

[3] FAO, WFP and IFAD, *The State of Food Insecurity in the World 2012. Economic growth is necessary but not sufficient to accelerate reduction of hunger and malnutrition* (Rome, FAO, 2012).

[4] FAO, *The State of Food and Agriculture 2013. Food systems for better nutrition* (Rome, 2013).

[5] FAO, WFP and IFAD, *The State of Food Insecurity in the World 2012*.

[6] Technical Support Team of the Open Working Group on Sustainable Development Goals, "Issues brief on food security and nutrition", May 2013.

238 in February 2011.[7] World cereal production is forecast to increase by about 7 per cent in 2013, helping to replenish global inventories and raising expectations for more stable markets in 2013-2014. International prices of wheat declined slightly with the onset of the 2013 harvests in the northern hemisphere, while maize prices increased, supported by continued tight global supplies. Export prices of rice showed mixed trends.[8]

9. In its *2012 Global Food Policy Report*, the International Food Policy Research Institute notes that a number of driving forces are exerting pressure on food production, consumption and markets: rising incomes and rapid urbanization in many developing countries are changing the composition of food demand and energy markets are having a greater impact on food security as a result of growing biofuel markets and the increasing share of energy in agricultural costs. In addition, calls for more investment in agricultural research and development may spur advances in agricultural productivity that will also affect food systems.[9]

10. The Institute's international model for policy analysis of agricultural commodities and trade can be used to project future scenarios using various policies and other conditions, such as population, investment and trade scenarios. Researchers have used it to look specifically at what could happen to food prices and food security if the world achieves higher agricultural productivity, experiences higher energy prices or lowers demand for meat. The results show that policy choices that lead to higher energy prices could lead to food prices becoming even higher and more volatile than they have been in recent years. Increasing agricultural productivity, however, by expanding public and private investment would lower food prices, lead to higher agricultural production and result in greater food security. Changes in dietary patterns, productivity growth and the energy policies of emerging countries — namely Brazil, China and India — have an especially large impact on future food security outcomes, given the significant roles of these countries as producers and consumers.[10]

B. Environmental pressures

11. The impact of agriculture on the environment is well documented. Greenhouse-gas emissions, biodiversity loss, nitrogen and phosphorus overuse and ocean acidification have reached alarming levels. More than 60 per cent of the world's major ecosystem goods and services are being degraded or used unsustainably, due in part to prevailing agricultural practices, while the genetic diversity of crops, breeds, trees and aquatic resources on which agriculture depends is increasingly at risk. Today, just three crops — wheat, maize and rice — supply more than half of humanity's calories.

[7] The FAO food price index is a measure of the monthly change in international prices of a basket of food commodities. It consists of the average of five commodity group price indices (representing 55 quotations), weighted with the average export shares of each of the groups for 2002-2004.

[8] FAO Global Information and Early Warning System, "Crop prospects and food situation", No. 2, July 2013.

[9] Available from www.ifpri.org/sites/default/files/publications/gfpr2012.pdf.

[10] International Food Policy Research Institute, *2012 Global Food Policy Report* (Washington, D.C., 2012). Available from www.ifpri.org/sites/default/files/publications/gfpr2012.pdf.

12. Since around 1950, the acceleration of industrialization and human development has imposed steadily increasing pressure on the biophysical Earth systems. Depletion of finite natural resources, combined with a decreasing capacity of ecosystems to absorb the waste of human activity, has prompted scientists and policymakers to identify and quantify "planetary boundaries" within which humanity can exist without causing irreparable environmental damage.[11] Planetary boundaries have already been exceeded in the areas of climate change, nitrogen and phosphorus cycles and biodiversity loss; in particular, climate projections based on existing data forecast a global mean surface warming of more than 2° C becoming the norm by 2060.[12]

13. The agricultural sector is more adversely affected by unpredictable and extreme effects of climate change than any other.[13] Higher average temperatures will accelerate the growth and development of plants. Most livestock species have comfort zones between 10° C and 30° C and, at temperatures above this, animals reduce their feed intake by 3 to 5 per cent per additional degree of temperature. In addition to reducing animal production, higher temperatures negatively affect fertility. Dryland agriculture in arid and semi-arid regions, where more than 40 per cent of the world's population and more than 650 million of the poorest and most food-insecure people live, is particularly vulnerable to the risks of climate change and variability and drought in particular. In some regions of the world, significant agricultural production takes place in low-lying coastal areas and where current population densities are high. In these regions, and in particular in small island States, a major threat of climate change is from saline intrusion, sea-level rise and increased flooding.[14]

14. These impacts, coupled with the decreasing availability of fresh water and increased land degradation and deforestation, in addition to inadequate policies to respond to these issues, are undermining the livelihoods of ever-growing numbers of people, especially rural people and those who live in extreme poverty. The degradation of ecosystems, depletion of biodiversity and the impacts of climate change disproportionately affect the most vulnerable populations, for they are the most likely to rely upon subsistence agriculture and often lack the coverage of social protection and safety nets to buffer the impact of drought, floods and other shocks.

C. Socioeconomic context

15. Demographic and social issues, including insufficient attention paid to the particular nutritional vulnerabilities of women and children, population growth, urbanization and rural-urban migration, growing inequalities between population groups within countries, inadequate or ineffective social protection systems and safety nets and discrimination against vulnerable groups, such as indigenous peoples, often prevent progress in overcoming hunger and malnutrition. Recent

[11] Johan Rockstrom and others, "A safe operating space for humanity", *Nature*, vol. 461 (September 2009).

[12] David Griggs and others, "Sustainable development goals for people and planet", *Nature*, vol. 495 (March 2013).

[13] Technical Support Team of the Open Working Group on Sustainable Development Goals, "Issues brief on sustainable agriculture".

[14] High-Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, *Food Security and Climate Change* (Rome, FAO, 2012).

efforts have significantly lowered the percentage of children under 5 years of age who are stunted (low height-for-age), underweight (low weight-for-age) or wasted (low weight-for-height). However, major regional disparities exist: in sub-Saharan Africa, 36 per cent of children under 5 years of age are stunted and in Asia the corresponding figure is 27 per cent.[15]

16. In addition, governance structures do not always support efforts to increase food security, e.g. where there is conflict, lack of political will, incoherent policies and programmes and lack of services in rural areas. High unemployment, unequal distribution of productive resources, insecure land tenure, in particular for women farmers, insufficient national investment in the agricultural sector and lack of access to markets are all problems that negatively affect the ability of a country to ensure food security for its people.[16] Smallholder and family farmers often bear disproportionately the weight of such institutional and policy problems. Inadequate disaster preparedness and response also affect all dimensions of food security. The food insecure, many of whom live in marginal areas, are disproportionately exposed to natural hazards and are the least able to cope with their effects.[17]

17. According to the Agricultural Market Information System in July 2013, adjustments were recently made to domestic policies in several countries: a cut in the support price for rice was announced in Thailand; in Egypt the Government purchased domestic wheat; and a release of government grain stocks was approved in India and the Russian Federation. In Viet Nam, interest-free loans were granted to support private stockholding of rice, while progress was made in implementing the Indonesian intervention mechanism for soybean with the establishment of a price stabilization programme.

18. With regard to export measures, India deferred a decision to allow additional exports of wheat and the export price floor for 35 per cent broken rice was cut in Viet Nam. To respond to import measures that followed the discovery of genetically modified wheat in Oregon, United States of America, the United States Department of Agriculture provided trading partners with a DNA test method to detect the specific genetically modified variety. The European Union will resume import duties on medium-quality wheat and other cereals from 1 July.[18]

19. Global production of biofuels has increased fivefold over the past decade, from less than 20 billion litres per year in 2001 to more than 100 billion litres per year in 2011. When crops are used as biofuels, the availability of crops for food and feed may be reduced, inducing an increase in prices and a reduction in the capacity of the system to meet food demand by the poor. While it can also encourage farmers to produce more, whether this happens depends on the mix of incentives, risks and costs faced by farmers. There is often a substitution effect at both the consumption

[15] United Nations Children's Fund, World Health Organization and World Bank joint child malnutrition estimates, "Levels and trends in child malnutrition" (New York, Geneva and Washington, D.C., 2011). Available from www.who.int/nutgrowthdb/estimates/en/index.html.

[16] See Committee on World Food Security, "Global strategic framework for food security and nutrition", September 2012.

[17] Technical Support Team of the Open Working Group on Sustainable Development Goals, "Issues brief on sustainable agriculture".

[18] Agricultural Market Information System, *Market Monitor No. 10*, July 2013. Available from www.amis-outlook.org/fileadmin/user_upload/amis/docs/Market_monitor/AMIS_Market_Monitor_current.pdf .

and the production levels, which is one reason why price increases spread to other crops.[19]

III. Efforts and progress in fostering coordination and cooperation at all levels

20. Much work has been undertaken at the international level to overcome the challenges of hunger and malnutrition by increasing cooperation and coordination.

A. Zero Hunger Challenge

21. The Zero Hunger Challenge, launched by the Secretary-General in June 2012 at the United Nations Conference on Sustainable Development, expresses a vision for a future free from hunger, where all people have access to adequate food at all times; no children suffer from chronic malnutrition (stunting); all systems for food production and processing are sustainable; smallholder productivity and income doubles; and waste or loss of food is eliminated through sustainable production and consumption.

22. One year later, programmes in line with the Challenge are taking shape in 16 countries in Latin America, Europe, Africa and Asia. Antigua and Barbuda, Mexico and Pakistan recently announced plans to launch Zero Hunger programmes with the help of national and international partners and politicians in London and Mexico City have declared their intention to become "zero hunger cities".

23. The Challenge has also been adopted collectively by the 23 multilateral organizations that make up the High-Level Task Force on the Global Food Security Crisis. These agencies are providing support to a number of initiatives and organizations, including hunger-free initiatives for West Africa and Latin America and the Caribbean, the African Union, the Comprehensive Africa Agriculture Development Programme and the New Partnership for Africa's Development. In April 2013, the Deputy Secretary-General of the United Nations helped to launch the Challenge in Bangkok at the Economic and Social Commission for Asia and the Pacific. Parliaments in 14 countries in Latin America and the European Parliament now have multiparty groups in support of reducing hunger.

24. The Challenge aims to unite those who are working for food security and an end to hunger, encourage them to identify how they can contribute effectively and stimulate the scaling-up of collective efforts. It builds on the comprehensive approach to food and nutrition security that has been pursued in the United Nations system since 2008, through resolutions of the General Assembly, initiatives undertaken by the Committee on World Food Security and the comprehensive framework for action developed by the High-Level Task Force. The Challenge is aspirational and an invitation to action — a vision that may lend inspiration to discussions under way among Member States and others on the development agenda beyond 2015, or on possible sustainable development goals, without pre-empting their discussions or limiting what Member States may choose as collective goals.

[19] High-Level Panel of Experts on Food Security and Nutrition, *Biofuels and food security* (Rome, FAO, 2013).

25. There are many pathways to achieving the Challenge. To date, local and national initiatives have led the way, usually initiated by Governments, mayors or non-governmental organizations, with the support of numerous civil society, farmer and consumer organizations, businesses and parliamentarians. There is also ample scope for committed individuals to champion the Challenge, backed by regional political bodies, non-governmental organizations, businesses and international organizations, including the United Nations system, which is realigning its efforts around the Challenge in order to give more effective and coherent support to country-led initiatives.

B. "Scaling Up Nutrition" movement

26. Food security and nutrition are multidimensional issues that go beyond calorie intake. Malnutrition — whether in the form of undernutrition, micronutrient deficiencies or excessive weight and obesity — is caused by a complex interplay of economic, social, environmental and behavioural factors that prevent people from consuming and fully benefiting from healthy diets.[20] Tackling these problems requires a comprehensive agenda involving food production, quality and diversity, incomes and access to food, utilization and consumption and access to health care, water, sanitation and education.

27. The "Scaling Up Nutrition" movement encourages increased political commitment and programmatic alignment to reduce global hunger and undernutrition, with an emphasis on tackling undernutrition in women, especially pregnant and lactating women, and children under 2 years of age. Malnutrition during the 1,000 days between pregnancy and a child's second birthday requires particular attention and dedicated strategies.

28. Since it was launched in 2010, 41 countries have joined the movement; 30 have established platforms that bring people together and have appointed a government representative; 20 report having updated and budgeted nutrition plans; and 15 are reducing stunting at an annual rate of 2 per cent and above. More than 100 global stakeholders are providing support to these countries, with the opportunity to reach 81 million stunted children.[21]

29. According to the movement, the key to fighting malnutrition lies in addressing both the immediate needs of populations that are vulnerable to malnutrition and the underlying determinants of undernutrition, such as poverty, by designing broad development programmes that are sensitive to nutrition. When agriculture, social protection, early child development, education, water and sanitation and other programmes address nutrition, they deal with the wider drivers of malnutrition, such as income, food security, women's empowerment and diet quality, offering significant benefits for improving nutrition and lives. Such broad, nutrition-sensitive programmes can also be vehicles for more direct action, such as ensuring that schools offer nutrition as a subject in their curricula.

30. Overcoming the multiple effects of malnutrition requires people to work together across issues and sectors to include nutrition in all development efforts. The "Scaling Up Nutrition" movement recognizes that the causes of malnutrition

[20] FAO, *The State of Food and Agriculture 2013*.

[21] Details on the movement and participating countries are available from http://scalingupnutrition.org.

include not only factors that most people would generally associate with nutrition but also factors that affect the broader context of life and health. It looks to implement both specific nutrition interventions and nutrition-sensitive approaches. Specific nutrition interventions include support for exclusive breastfeeding up to 6 months of age and continued breastfeeding, together with appropriate and nutritious food, up to 2 years of age; fortification of foods; micronutrient supplementation; and treatment of severe malnutrition.

31. These nutrition-sensitive approaches embrace the interlinkages between nutrition and other related issues, including making nutritious food more accessible to everyone and supporting small farms as a source of income and food; improving access to clean water and sanitation to reduce infection and disease; ensuring that children have sufficient energy to obtain an education and earn an adequate income as adults; improving access to health-care services to ensure that women and children remain healthy; establishing a stronger, healthier population and sustained prosperity to increase resilience and better endure emergencies and conflicts; and, most importantly, empowering women to be leaders in their families and communities.

32. Agricultural research must therefore continue to enhance productivity, while paying greater attention to foods that are dense in nutrients, such as fruits, vegetables, legumes and animal products, and to more sustainable production systems. Production interventions are more effective when they are sensitive to gender roles and combined with nutrition education. Improvements in traditional supply chains can help to reduce losses, lower prices and increase diversity of choice for lower-income households. The growth of modern retailing and food processing can facilitate the use of fortification to combat malnutrition, but the increased availability of highly processed, packaged goods may contribute to overweight and obesity.[22] Moreover, modern supply chains do not always offer easy access for small farms, many of which produce the majority of food in developing countries, and this may have a negative impact on farmers' own nutrition.

C. New Partnership for Africa's Development and the Comprehensive Africa Agriculture Development Programme

33. With the support of the international community, Africa is leading the implementation of a number of programmes under the New Partnership for Africa's Development and in particular the Comprehensive Africa Agriculture Development Programme.

34. In 2013, members of the Group of Eight reaffirmed, in the Lough Erne communiqué, their commitment to responding with the scale and urgency needed to achieve sustainable global food and nutrition security, recognizing the critical role played by smallholder farmers, especially women. They also reaffirmed their commitment to the Comprehensive Africa Agriculture Development Programme as the guiding framework for agricultural transformation in Africa and welcomed the establishment of a robust system to track results integrated into the monitoring framework of the Programme.

[22] FAO, *The State of Food and Agriculture 2013*.

35. The New Alliance for Food Security and Nutrition was launched at the Group of Eight meeting in 2012 as a means to increase private-sector investment in support of the country investment plans of the Comprehensive Africa Agriculture Development Programme. The New Alliance is aligned with the Programme and uses the approach of "Grow Africa", which is based on the initiative of the World Economic Forum for a new vision for agriculture.[23] The stated goal is to bring the private sector to the table by creating an enabling environment for businesses and farmers to boost productivity and thereby increase the incomes of African smallholder farmers.

36. The 2013 progress report on the New Alliance highlights the implementation of policy reforms and efforts to catalyse private-sector investment, in addition to the launch of tools to mobilize capital, improve access to new technology, manage risk and improve nutrition. Benin, Malawi and Nigeria are active in the New Alliance and initial steps have been taken to develop a new cooperation framework with Senegal.

37. The Global Agriculture and Food Security Program, set up in 2010 by the international community for channelling long-term investments in food security and nutrition in an effective way, received pledges of $1.3 billion in 2013 ($940.8 million to its public sector window, $308.7 million to the private sector window and $68.5 million pending allocation).

38. The Program has allocated $658 million to country-led programmes in 18 countries: Bangladesh, Burundi, Cambodia, Ethiopia, Haiti, the Gambia, Kyrgyzstan, Liberia, Malawi, Mongolia, Nepal, the Niger, Rwanda, Senegal, Sierra Leone, Tajikistan, Togo and the United Republic of Tanzania. In June 2013, the third call for proposals by the Program closed, with 20 countries submitting plans requesting a total of $732.8 million.

D. Committee on World Food Security

39. The Committee on World Food Security is a key organ in addressing the issue of global food security. As part of the reform of the Committee in 2009, a joint FAO, IFAD and WFP secretariat, a multi-stakeholder advisory group and a high-level panel of experts on food security and nutrition were established to assess and analyse the current state of food security and nutrition and its underlying causes; provide scientific and knowledge-based analysis and advice on specific policy issues, utilizing existing high-quality research, data and technical studies; identify emerging issues; and help members to prioritize future actions in, and direct attention to, key focal areas.

40. The High-Level Panel received its mandate from the Committee on World Food Security and reports to it. It produces its reports, recommendations and advice independently from governmental positions, in order to inform and nourish the debate with comprehensive analysis and advice. It has a two-tier structure: a steering committee composed of 15 internationally recognized experts in a variety of fields relating to food security and nutrition and project teams acting on a project-specific basis, selected and managed by the steering committee to report on specific issues.

[23] See www.weforum.org/issues/agriculture-and-food-security#nva.

41. The Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security, endorsed by the Committee on World Food Security in May 2012, serve as a reference for and provide guidance on improving the governance of tenure of land, fisheries and forests with the overarching goal of achieving food security for all and supporting the progressive realization of the right to adequate food in the context of national food security. They are consistent with, and draw on, international and regional instruments, including the Millennium Development Goals, that address human rights and rights of tenure. For those seeking to improve tenure governance, the Guidelines encourage regular review of such instruments for their applicable obligations and voluntary commitments.

42. In June 2013, the leaders of the Group of Eight welcomed the Guidelines and pledged to support greater transparency in land transactions, including in the early stages, and increase the capacity to develop good land governance systems in developing countries. To support regional processes such as the land policy initiative of the African Union, they announced the establishment of partnerships with Burkina Faso (United States), Namibia (Germany), Nigeria (United Kingdom of Great Britain and Northern Ireland), the Niger (European Union), Senegal (France), South Sudan (European Union) and the United Republic of Tanzania (United Kingdom) to accelerate and target support to existing land governance programmes in conjunction with businesses, in particular farmers, and civil society. That support will be tailored to the needs of each country and its national development plans with the objective of improving land governance, in particular transparency in land transactions, by 2015. In addition, Italy and Japan are providing increased support through FAO and the World Bank to support the implementation of the Guidelines in developing countries.

43. The Committee on World Food Security is developing, through an inclusive consultation process to ensure broad ownership, a set of principles to promote responsible investment in agriculture in the context of food security and nutrition. The principles take into account existing guidance frameworks and build on the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security and the Voluntary Guidelines on the Progressive Realization of the Right to Adequate Food in the Context of National Food Security. They will address all types of investment in agricultural value chains and food systems including by, for and with smallholder producers and investments in agricultural research, extension and technology transfer. They will also encompass foreign and domestic, public and private small-scale, medium-scale and large-scale investments.

44. This process follows the proposals of the Principles for Responsible Agricultural Investment that Respects Rights, Livelihoods and Resources, developed by FAO, IFAD, the United Nations Conference on Trade and Development and the World Bank, and is unfolding in close cooperation with the process for developing business principles for sustainable agriculture being undertaken by the United Nations Global Compact.

IV. Progress in implementing the twin-track approach

45. The updated comprehensive framework for action of the High-Level Task Force on the Global Food Security Crisis is a coordinated approach throughout the United Nations system for supporting country action that aims for sustainable and resilient rural livelihoods and food and nutrition security for all. Efforts to achieve sustainable food and nutrition security are inspired and guided by 10 principles:

(a) Twin tracks to food and nutrition security;

(b) Need for a comprehensive approach;

(c) Smallholders, especially women, at the centre of actions;

(d) Increased focus on the resilience of household livelihoods;

(e) More and better investments in food and nutrition security;

(f) Importance of open and well-functioning markets and trade;

(g) Value of multi-stakeholder and multisectoral partnerships;

(h) Sustained political commitment and good governance;

(i) Strategies led by countries with regional support;

(j) Accountability for results.

46. The comprehensive twin-track approach to food security and nutrition security consists of direct action to immediately tackle hunger for the most vulnerable and longer-term actions to support the development of sustainable agriculture, food security and nutrition; and rural development programmes to eliminate the root causes of hunger and poverty, including through the progressive realization of the right to adequate food.

47. Achieving food and nutrition security requires structural changes throughout food systems, from production to consumption. Key aspects include increasing agricultural productivity, sustainability, cutting food loss and waste, mitigating the impact of food price spikes and volatility, promoting nutritious diets and building resilience to shocks. An enabling policy environment for responsible investment in the development of rural sectors, including food markets and supply chains, is essential for progress. Social protection systems are also critical.

A. Short-term security measures

48. Social protection is an important element of many national strategies to reduce malnutrition. This includes specific programmes designed to address the nutritional needs of women of childbearing age, pregnant women and lactating mothers. In addition, social protection measures, including social protection floor initiatives, are increasingly seen as integral to strategies to promote growth and investment. Integrated social protection programmes with explicit food security and nutrition objectives have been promoted in countries such as Brazil, Colombia, Ethiopia, Kenya and Mexico, although their impact on nutrition is not always directly evident.

49. Conditional cash transfers have demonstrated that positive impacts on nutrition require a multidimensional approach. Examples include programmes that promote

health care, education and women's empowerment. Unconditional cash transfers have also been found to have positive impacts on reducing stunting in some countries, such as Ecuador and South Africa. Research shows that safety net programmes need to combine different approaches (e.g. cash plus food) to respond to different circumstances (e.g. local food supply capacity).[24] Through the WFP Centre of Excellence against Hunger, Brazil has shared its successful *Fome Zero* (Zero Hunger) experience in improving national school meal programmes, family agriculture and food distribution.

50. In 2012, WFP distributed 3.5 million tons of food, assisting more than 97.2 million people in 80 countries and responding to hunger crises in the Democratic Republic of the Congo, Myanmar, the Syrian Arab Republic, Yemen and the Sahel region.

51. The FAO Global Information and Early Warning System on Food and Agriculture continuously monitors crop prospects and the food security situation at the global, regional, national and subnational levels and warns of impending food difficulties and emergencies. It maintains a unique database on all aspects of food supply and demand for every country and aims to regularly provide policymakers and the international community with up-to-date information, so that timely interventions can be planned and suffering avoided.

52. The Global Alliance for Resilience initiative for the Sahel region aims to promote greater resilience among vulnerable populations in the Sahel by creating greater synergy between emergency actions and long-term strategies aimed at addressing the root causes of food crises, in partnership with the Economic Community of West African States, the West African Economic and Monetary Union and the Permanent Inter-State Committee on Drought Control in the Sahel.

B. Ensuring sustainable agriculture and food security in the long term

53. International, regional and national efforts are under way to strengthen the capacity of developing countries, in particular their small-scale producers, in order to enhance the production, productivity and nutritional quality of food crops and to promote sustainable practices in pre-harvest and post-harvest agricultural activities.

54. Gender equality and women's empowerment must provide the cornerstone of these food security and nutrition strategies. Women have multiple roles in ensuring that food security and adequate nutrition and gender inequalities are recognized as a major factor undermining progress. The gender gap persists for many assets, inputs and services. Women need equal access to productive resources, income opportunities, education, credit services and social protection to ensure positive impacts on food security and sustainable agriculture.

55. Governments have been urged to invest in and strengthen efforts to meet the basic needs of rural women, including those relating to their food and nutritional security and that of their families, and to promote adequate standards of living for them, decent conditions of work and access to local, regional and global markets. Continued progress is needed in the growth of agricultural cooperatives through

[24] See Technical Support Team of the Open Working Group on Sustainable Development Goals, "Issues brief on food security and nutrition".

easy access to affordable finance, the adoption of sustainable production techniques, investment in rural infrastructure and irrigation, strengthened marketing mechanisms and support for the participation of women in economic activities.

56. Sustainable agricultural intensification must be based on a variety of techniques that are widely known but not all widely practised, including conservation tillage, the use of organic fertilizers, natural pest control, the use and sharing of traditional as well as improved seed varieties, integrated soil, water and plant management, crop rotation and intercropping, including with agroforestry systems. One positive aspect is that these techniques generally draw on knowledge that is in the public domain, including the traditional knowledge of indigenous peoples and other farming and pastoralist communities. Knowledge-sharing, especially between farmers, is vital to their wide dissemination.

57. Challenges faced by indigenous peoples in the context of food security require States to take special actions to combat the root causes of the disproportionately high level of hunger and malnutrition among indigenous peoples. In its resolution 66/221, the General Assembly designated 2013 as the International Year of Quinoa and encouraged all Member States, the organizations of the United Nations system and all other relevant stakeholders to take advantage of the Year as a way of promoting the traditional knowledge of the Andean and other indigenous peoples; contributing to the achievement of food security, nutrition and poverty eradication and raising awareness of their contribution to social, economic and environmental development; and sharing good practices on the implementation of activities during the Year, as indicated in the master plan of activities (A/67/553, appendix).

58. The International Year of Quinoa has focused global attention on the biodiversity and nutritional value of quinoa and increased the visibility of its potential to contribute to global food security, especially in countries where the population has no access to other protein sources or where production conditions are limiting. Quinoa is the only plant food that contains all the essential amino acids, vitamins and trace elements and can therefore make an important contribution to food security, nutrition and poverty eradication. It is extraordinarily adaptable to various agroecological floors, is also a water-efficient crop and is tolerant of and resistant to lack of soil moisture.

59. Technical and policy frameworks for the conservation and sustainable use of quinoa diversity worldwide, partnerships to promote the cultivation of quinoa and efforts to recognize the contribution of the indigenous peoples of the Andes are broadening global awareness of the importance of developing sustainable production systems (ibid., p. 8).

60. The impact of biofuels has been debated in several forums and is on the agenda for the fortieth session of the Committee on World Food Security, in October 2013. The supporters of biofuels consider them a critical tool in reducing greenhouse-gas emissions and mitigating the effects of climate change. Biofuel critics say that using food crops such as maize and soybeans to produce fuel rather than food increases global food prices and contributes to hunger and food insecurity.

61. Climate-sensitive agricultural practices aimed at building the resilience of vulnerable groups and food systems, including through agroforestry, conservation agriculture, water management schemes, drought-resistant and flood-resistant seeds and sustainable livestock management, can also have a wider positive impact,

emphasizing adaptation and mitigation to climate change as a major concern and objective for all farmers and food producers, especially small-scale producers.

62. The issue of reducing loss and waste is one of the five objectives of the Zero Hunger Challenge. While there is more than enough food being produced globally to meet the nutritional needs of all, tremendous amounts of food are lost and wasted in the process of production and at the consumption stage. These are problems that the international community has agreed to seek to tackle more thoroughly — the former through improved post-harvest handling and storage in developing countries, the latter mostly through changing consumption patterns in developed countries. Eliminating, or substantially reducing, loss and waste could greatly augment the available food supply, helping to answer the question of how the world will feed another 2 billion people in the coming decades without additional deforestation and further land degradation.

63. Many countries aspire to establish alternative patterns of food production and consumption rooted in the three dimensions of sustainability, with ambitious targets for reducing post-harvest losses or waste, in addition to employing alternative mechanisms of governance for agricultural, nutritional and food systems, which are of universal although differentiated relevance. Such a transformative approach gained support at a high-level event for the United Nations Development Group global thematic consultation on hunger, food security and nutrition in the framework of the development agenda beyond 2015, which was held in Madrid in April 2013.[25]

64. Progress has also been seen through the "Think.Eat.Save. Reduce Your Foodprint" initiative, which aims to reduce food waste and loss and is supported by FAO and the United Nations Environment Programme, among others. In 2013, World Environment Day inspired people to save food through events in more than 150 countries.

65. Consumers ultimately determine what they eat and therefore what the food system produces. Governments, international organizations, the private sector and civil society can, however, all help consumers to make healthier decisions, reduce waste and contribute to the sustainable use of resources by providing clear, accurate information and ensuring access to diverse and nutritious foods.

66. Better governance of food systems at all levels, facilitated by high-level political support, is needed to build a common vision, to support evidence-based policies and to promote effective coordination and collaboration through integrated multisectoral action.

V. Progress in ensuring means of implementation

67. Food security and nutrition is a global challenge and a national policy responsibility. Any plans for addressing food security challenges and the eradication of poverty in relation to food security must be nationally articulated, designed, owned and led and built in consultation with all relevant stakeholders at the national level, as appropriate. Member States, especially those that suffer from food insecurity, must make food security and nutrition a high priority and reflect this in their national programmes and budgets.

[25] See www.worldwewant2015.org/food2015.

68. Hunger and food security were the focus of high-level meetings held in 2013 in Addis Ababa, Brussels, Dublin, London, Madrid, Paris and Washington, D.C. Governments, civil society organizations and the private sector made specific commitments to eradicating hunger at those meetings, with pledges exceeding $25 billion made at the "Nutrition for Growth" high-level event held in London preceding the meeting of the Group of Eight. The Group of Eight, in the Lough Erne communiqué, renewed support for the Global Agriculture and Food Security Program to finance country-owned agricultural development activities, especially those that achieve positive nutrition outcomes, and to leverage greater flows of private capital for smallholder farmers and agribusinesses in low-income countries.

69. International collaboration is key in sharing knowledge and experience, innovation, capacity-building, financing and inclusive and equitable governance of markets and common resources. At all levels, there is a need for multi-stakeholder partnerships, bringing together the full range of actors, in particular small producers and their organizations, to tackle shared priorities around food security and nutrition. This requires joint efforts in a spirit of partnership, supported by principles of equity, inclusion and sustainability and underpinned by good governance and mutual accountability. Public and private investment in food systems needs to strengthen the investment capacity of small producers, improve their access to financial and productive resources and facilitate their access to markets, technology and knowledge.

70. While it is widely agreed that a universal, rules-based, open, non-discriminatory and equitable multilateral trading system will promote agriculture and rural development in developing countries and support the achievement of food security objectives, a successful conclusion to the Doha Development Round as a whole appears elusive in the near future. In line with the mandate of the eighth Ministerial Conference of the World Trade Organization and in the run-up to the ninth Conference, to be held in Bali, Indonesia, in December 2013, member States are engaged in advancing negotiations in those areas where progress can be achieved before the full conclusion of the Round. In this context, a proposal on food stockholding and food aid from the Group of 33 developing countries has generated productive discussions in the agriculture negotiating group ahead of the upcoming Conference.

71. Some elements of potential convergence have begun to emerge. However, major differences remain on some of the core issues: while the objective is food security, the main stumbling blocks of the proposal centre on provisions that would allow the Governments of developing countries to buy food at prices set by them, with the objective of stocking it for food security purposes or distributing it as food aid without having to count it as trade-distorting support, which is subject to limits. Other countries question the extent to which this is a problem for most developing countries. Two additional proposals from the Group of 20 developing countries focus on (a) tariff quota administration and (b) export subsidies and related issues grouped together as "export competition", prescribing a first step towards eliminating export subsidies and disciplining export credit to reduce the chances of it being subsidized.[26]

[26] See www.wto.org/english/news_e/news13_e/agng_23may13_e.htm.

VI. Way forward

A. Achieving the Millennium Development Goals

72. As efforts to achieve the Millennium Development Goals by 2015 intensify in the coming year, support for developing countries that are lagging behind will need to target the underlying causes of hunger and malnutrition, recognizing the interlinkages among the dimensions of sustainable agriculture and increased productivity, gender equality, poverty, unemployment, infrastructure, health and well-being, good governance and political will that drive the development process. Indeed, strong interdependencies exist between food security and nutrition and many other targets of the Goals, including those relating to maternal and child health, education, gender and poverty. The special event on the Goals to be held during the sixty-eighth session of the General Assembly in September 2013 will be an occasion to advocate accelerating progress on the Goals and ensuring that more commitments are solicited for initiatives to fast-track them.

B. Sustainable development goals and food security, nutrition and sustainable agriculture

73. Discussions during the third session of the Open Working Group on Sustainable Development Goals in May 2013 energetically tackled the issues surrounding food security, nutrition and sustainable agriculture and recognized inherent interlinkages with poverty eradication, water security, drought, desertification and land degradation, in addition to many other areas that will eventually be woven into a narrative and captured within the sustainable development goals and their associated targets and indicators.

74. During this meeting, a number of Member States and major groups welcomed the Zero Hunger Challenge and expressed their support for a vision of a world without hunger and malnutrition in all its forms, especially child stunting, and where agriculture and food systems are sustainable and contribute to eradicating rural poverty through the inclusion of women and men smallholders, rural workers and the landless.

75. The Open Working Group generally supported the need for a holistic, integrated and inclusive approach to sustainable development that promotes sustainable agriculture and food systems. The question is how to conceptualize a possible goal for food security, nutrition and sustainable agriculture within the sustainable development goals that is concise, universal in nature and applicable at the national level, which demands a holistic vision of the challenges at hand.

76. There is an emerging consensus within the international community that actions along multiple dimensions are required to ensure food security. These include actions to ensure food availability, access, stability, consumption and utilization;[27] improve health and sanitation; recognize the critical interlinkages between food security, water, energy and climate change; and invest in sustainable agriculture and rural development. Acting comprehensively on these dimensions is

[27] Utilization is commonly understood as the way in which the body makes the most of various nutrients in food.

essential to ensure that linkages between food security and nutrition and different parts of the agenda on sustainable development goals are addressed. Such multidimensionality and linkages may be addressed through the formulation of an overall sustainable development goal, through targets under related goals, through the inclusion of nutrition-sensitive indicators relating to different targets and through the promotion of nutrition-sensitive approaches and strategies to implement the sustainable development goals.

77. Multidimensionality and complexity suggest the need to capture both food security and nutrition outcomes and their enablers (e.g. linkages to sustainable agriculture, rural development, rural-urban linkages, infrastructure, education, water, health, decent jobs, social protection, the empowerment of women and gender equality). They also signal the need to promote a holistic notion of food systems, including all food-related activities (producing, storing, processing, packaging, trading and consuming food), and acknowledge the challenges confronting different food systems in the current global environment. Such an approach will also require improved mechanisms for due diligence and significant efforts to coordinate and monitor the impact of many new initiatives.

78. A possible goal for achieving food and nutrition security through sustainable agriculture and food systems might include targets to minimize food waste and post-harvest losses; increase productivity and income for smallholder and women farmers; achieve a transformation to sustainable agriculture; and end malnutrition and ensure the right to food.[28]

C. Agriculture development and food security in the development agenda beyond 2015

79. The recent report of the High-level Panel of Eminent Persons on the Post-2015 Development Agenda suggested that a goal of ensuring food security and good nutrition could be considered by the Open Working Group. Such a goal might include targets of ending hunger and protecting the right of everyone to have access to sufficient, safe, affordable and nutritious food; reducing stunting, wasting and anaemia for all children under 5 years of age; increasing agricultural productivity with a focus on sustainably increasing smallholder yields and ensuring access to irrigation; adopting sustainable agricultural, ocean and freshwater fishery practices and rebuilding designated fish stocks to sustainable levels; and reducing post-harvest loss and food waste (A/67/890, annex).

80. As part of the consultation process beyond 2015, FAO and WFP launched a global thematic consultation on hunger, food security and nutrition, together with IFAD and Biodiversity International, with the support of the Special Representative of the Secretary-General for Food Security and Nutrition and a wide range of contributing agencies and partners, including civil society and the private sector. The consultation process, which was hosted by the Governments of Spain and Colombia, began with online discussions hosted by the Global Forum on Food Security and Nutrition from November 2012 to January 2013, then convened an

[28] See the Co-Chair's summary of the third session of the Open Working Group of the General Assembly on Sustainable Development Goals, May 2013. Available from http://sustainabledevelopment.un.org/index.php?menu=1630.

informal consultation with stakeholders of the Committee on World Food Security in February 2013 and concluded with the high-level consultation in Madrid in April 2013.

81. The high-level consultation produced a global vision and building blocks for ending hunger, food insecurity and malnutrition that have informed the development framework beyond 2015, drawing on the main inputs and recommendations from the consultation process and garnering strategic and political commitment from participants to support the vision, globally raise awareness and take the lead on issues of hunger, food security and nutrition in the negotiations on the agenda beyond 2015.[29]

82. To end hunger and malnutrition, it will be important to accord priority to increasing resilience in agriculture and food systems by building healthy and dynamic ecosystems that are better able to cope with and respond to climate change, extreme weather events, emerging diseases, shifts in population patterns and economic disruption and shocks. The extent to which the poor will benefit from economic growth depends on initial levels of inequality, the extent to which growth generates employment for the poor and the sector of the economy in which growth occurs. Agricultural growth led by smallholders, especially women, will be most effective in reducing extreme poverty and hunger when it increases returns to labour and generates employment for rural people living in poverty.[30]

83. To achieve sustainable agriculture development and food security, all those who are able to should direct their efforts toward investing in critical agents: the women and men small producers and their organizations, fisherfolk, livestock keepers, forest users, rural workers, rural entrepreneurs and indigenous peoples, who will underpin the degree of success of the development agenda beyond 2015.

[29] See www.worldwewant2015.org/food2015.

[30] FAO, WFP and IFAD, *The State of Food Insecurity in the World 2012*.

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Elections to fill vacancies in subsidiary organs and other elections: election of 14 members of the Human Rights Council

Note verbale dated 27 August 2013 from the Permanent Mission of Viet Nam to the United Nations addressed to the President of the General Assembly

The Permanent Mission of the Socialist Republic of Viet Nam to the United Nations presents its compliments to the President of the sixty-seventh session of the General Assembly and has the honour to inform him that the Government of the Socialist Republic of Viet Nam has decided to present its candidature for membership in the Human Rights Council for the term 2014-2016 at the elections to be held in New York in November 2013. This is the first time Viet Nam is seeking a membership to the Human Rights Council and its candidature has been endorsed by Association of Southeast Asian Nations (ASEAN) member States.

In this regard, the Government of Viet Nam has the honour to submit an aide-memoire containing voluntary pledges and commitments assumed by Viet Nam to contribute to the promotion and protection of human rights, in accordance with resolution 60/251 of the General Assembly (see annex). The Permanent Mission of Viet Nam to the United Nations would be grateful if the present note verbale and its annex, could be included in the final document to be produced for the forthcoming elections and circulated to Member States.

* A/68/150.

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Annex to the note verbale dated 27 August 2013 from the Permanent Mission of Viet Nam to the United Nations addressed to the President of the General Assembly

Viet Nam's candidacy to the United Nations Human Rights Council for the term 2014-2016: voluntary pledges under resolution 60/251

The Government of the Socialist Republic of Viet Nam has decided to put forward its candidacy to the United Nations Human Rights Council for the term 2014-2016 at the elections to be held in November 2013 during the sixty-eighth session of the United Nations General Assembly.

Viet Nam is the only candidate among ASEAN member States. It has never served on the Human Rights Council, despite its capacity to contribute to the work of the Council. Therefore, opportunities should be given to countries like Viet Nam. Building on the achievements and experience resulting from 26 years of comprehensive reform known as "Doi moi", based on the three pillars of economic growth, social progress and equity, and human rights, Viet Nam wishes to join the Human Rights Council in order to share that experience and contribute more actively to the joint efforts of the Council and the international community at large, with a view to better promoting and protecting human rights worldwide.

As provided for in General Assembly resolution 60/251, Viet Nam undertakes the following voluntary pledges.

I. Promotion and protection of human rights at the national, regional and international levels

At the national level

In Viet Nam, the people are the ultimate goal and the engine of development. Every policy aims at serving the people. The consistent policy of the State of Viet Nam on ensuring human rights stems from the earnest aspiration of the people of a former colony to enjoy civil and political rights and of the people of poor countries to enjoy economic, social and cultural rights. Respect for and promotion of human rights also form an essential element in achieving sustainable development, as clearly manifested in the Constitution and relevant laws, in their implementation mechanisms and in practice.

All economic, cultural, social, political and civil rights of the person are fully provided for in the Viet Nam Constitution. The contents of these fundamental and universal human rights have been continually concretized and improved in laws and by-laws, in accordance with the spirit and standards enshrined in the Universal Declaration of Human Rights. This provides a solid legal framework for the formulation of policies, strategies and development plans for the fundamental rights and freedoms of the people.

The mechanisms for the promotion and protection of human rights in Viet Nam are developed in accordance with the principle of a rule-of-law State of the people, by the people and for the people under the motto "people know, people discuss,

people do, people check". It is the people who decide all matters of State and society, have rights and enjoy favourable conditions to actively participate in the affairs of State and society through the National Assembly, national authorities at all levels and political-social organizations. Through these mechanisms, their rights are guaranteed from policy planning to implementation and monitoring. Viet Nam has implemented, in a uniform manner, socioeconomic development strategies, legal, judiciary and administrative reforms, and has strengthened the grass-roots democracy regime in order to better meet the rights and fundamental freedoms of the people.

The rights and fundamental freedoms of the people are respected and ensured in an increasingly effective and full manner, particularly in the following areas:

(a) In the past 5 years, annual economic and GDP growth has been maintained at a high level of around 6 per cent, while 8 million new jobs have been created, the urban unemployment rate has fallen to 4.5 per cent, the poor household rate has been reduced to 9.5 per cent, social security has been strengthened and enjoyment of health services increased, particularly for children, the poor people and ethnic minorities. The Human Development Index has continuously increased. Viet Nam has achieved many of the Millennium Development Goals ahead of schedule and is on track to reach the remaining ones;

(b) In addition to these achievements, the participatory processes and voice of the people has been enhanced. The rights of the people are better ensured through better implementation of direct democratic rights (right to vote and right to stand for elections), indirect democratic rights (through elected organs, such as the National Assembly and the People's Councils at all levels), the right to express opinions and improved operation of complaint and denunciation mechanisms. The information and press services in Viet Nam have greatly increased both in quantity and type. The access and application of information technology and the Internet have also rapidly developed, and Viet Nam is considered by United Nations specialized agencies as one of the leading countries in this area. The faith and religious activities have become more diverse and vivid, with the development of all major world religions and endogenous religions and faiths in terms of the number of organizations and followers, religious facilities, places of worship, training facilities, publications, etc.

At the global and regional levels

Viet Nam implements a foreign policy based on independence, self-reliance and comprehensive international integration for peace, cooperation and development. Viet Nam actively participates, in a constructive and responsible spirit, in international and regional cooperation, multilaterally and bilaterally, in all areas, including the protection and promotion of human rights.

Viet Nam is a party to eight important international treaties relating to human rights, including the International Covenant on Economic, Social and Cultural Rights, the International Covenant on Civil and Political Rights, the International Convention on the Elimination of All Forms of Racial Discrimination, the Convention on the Elimination of All Forms of Discrimination against Women and the Convention on the Rights of the Child (Viet Nam was the first Asian country to ratify this Convention). In addition, Viet Nam is a party to 18 conventions of the International Labour Organization. Viet Nam has always respected and implemented seriously the international human rights treaties, to which it is a State party.

Viet Nam has also cooperated well with the treaty bodies and fulfilled its periodic reporting obligations. In 2012, Viet Nam presented periodic reports to the Committees on the Elimination of Racial Discrimination and the Rights of the Child, while also preparing a report on the implementation of the International Covenant on Economic, Social and Cultural Rights; in 2013, a report will be presented on the implementation of the Convention on the Elimination of All Forms of Discrimination against Women.

In December 2011, Viet Nam ratified the United Nations Convention on Transnational Organized Crime and its Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children. Viet Nam is now carrying out ratification procedures with regard to the Convention on the Rights of Persons with Disabilities and considering its accession to the Convention against Torture. In addition, Viet Nam voted in favour of a resolution on a comprehensive and integral international legal instrument to promote and protect the rights and dignity of older persons and will proactively engage in the formulation of this instrument.

Viet Nam has actively engaged in international activities on human rights within the United Nations bodies and forums. Viet Nam was a member of and contributed actively to the work of the Commission on Human Rights (2001-2003), the Economic and Social Council (2000-2002), the Commission for Social Development (2002-2004 and 2012-2014) and the Security Council (2008-2009). Within the Security Council, Viet Nam presided over the negotiations on the presidential statement entitled "Children and armed conflict" and resolution 1889 (2009) entitled "Women and peace and security".

Viet Nam attaches special importance to and actively participates in the work of the Human Rights Council. Viet Nam values the Universal Periodic Review (UPR) as an effective process to share information and experience and enhance mutual understanding among countries, thus helping to promote and protect human rights. Viet Nam presented its first UPR report in 2009, which was much welcomed by Member States and the Council thanks to its diverse content and constructive approach. Viet Nam accepted 93 of the 123 UPR Working Group recommendations (nearly 80 per cent) and is actively implementing those recommendations. Viet Nam has enhanced dialogue and cooperation with special procedures. In addition to replying in a timely manner to all communications since July 2010, Viet Nam has received four special procedures on minority issues, extreme poverty and human rights, the effects of foreign debt on human rights and the right to health. Viet Nam will receive additional special procedures on the right to education and the right to food as committed.

Viet Nam has contributed to strengthening solidarity and cooperation within ASEAN, including human rights cooperation, particularly in the development of the ASEAN Charter and the ASEAN Community building process, and the establishment and operation of the ASEAN Intergovernmental Commission on Human Rights (AICHR). In 2010, as Chair of ASEAN and AICHR, Viet Nam took the lead in formulating AICHR's five-year workplan, improving its working methods and promoting cooperation with ASEAN partners, including the United Nations. Viet Nam also worked actively with other members in drafting the ASEAN Human Rights Declaration. This Declaration, approved at the ASEAN Summit in November 2012, reaffirmed the ASEAN commitment to human rights, in line with internationally recognized norms and standards. The Declaration creates the

framework for ASEAN cooperation to promote and protect human rights in the region.

Viet Nam has, lastly, enhanced bilateral cooperation and dialogue in human rights with partner countries to share information and experience in order to better ensure human rights in Viet Nam and relevant countries. Viet Nam holds annual human rights dialogues with Australia, the European Union, Norway, Switzerland and the United States, the outcomes of which are positively appreciated.

II. Viet Nam's voluntary commitments as a member of the Human Rights Council

1. Adopt policies and measures and increase resources to better ensure all fundamental economic, social, cultural, civil and political human rights in line with internationally recognized norms.

2. Achieve the Millennium Development Goals.

3. Continue to improve the legal and judicial systems, build a rule-of-law State and strengthen national institutions protecting human rights, including the possible establishment of a national human rights institution.

4. Adopt policies and measures and increase resources to ensure social security, welfare and justice, particularly the rights of vulnerable groups, such as women, children, the elderly, people with disabilities and ethnic minorities.

5. Promote human rights education and training to improve the awareness and capacity of law-enforcement agencies to better ensure peoples' rights and fundamental freedoms.

6. Continue to implement the recommendations that Viet Nam has accepted in the first UPR cycle in 2009, and to participate in a responsible and constructive manner in the second UPR cycle.

7. Strengthen grass-roots democracy and the people's involvement in the planning and execution of policies, and improve Viet Nam's engagement with political, social organizations working in the field of human rights.

8. Participate in an active, constructive and responsible manner in the work of the Council to contribute to strengthening the Council's efficiency and effectiveness, transparency, objectivity and balance, in the spirit of dialogue and cooperation.

9. Strengthen cooperation and dialogue with United Nations human rights mechanisms, particularly treaty bodies and Office of the United Nations High Commissioner for Human Rights special procedures, including possible invitations for additional country visits to Viet Nam.

10. Support and actively participate in intergovernmental consultations on improving the capacity and effectiveness of human rights treaty bodies.

11. Participate in and contribute to the promotion of ASEAN human rights cooperation, particularly in the AICHR framework and in the implementation of the ASEAN Human Rights Declaration.

12. Maintain bilateral human rights dialogue and cooperation mechanisms with partner countries, with the common goal of promoting and protecting human rights in the world.

13. Complete procedures for early accession to the Convention against Torture.

14. Complete procedures for the ratification of the Convention on the Rights of Persons with Disabilities.